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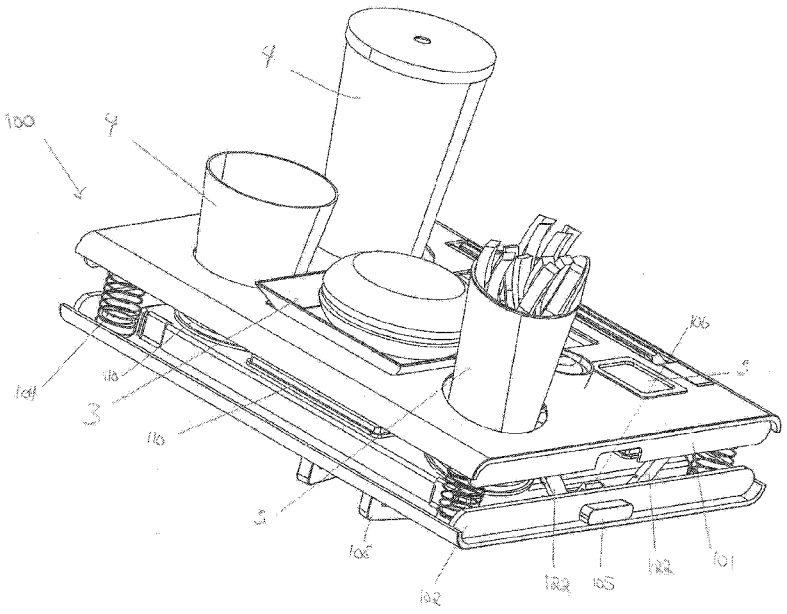

Fig. 18

(57) Abstract: The invention relates to a tray for holding items, such as containers of food or beverage, said tray comprising a lateral support plate (1;101) and a base plate (5;102) arranged in a substantially parallel relationship, the tray further having spacing and locking means (6;25, 122; 104, 105, 106, 107), said spacing and locking means (6; 25, 122, 104, 105, 106, 107) interconnecting the lateral support plate (1; 101) and the base plate (5;102). The invention is distinctive in the lateral support plate (1;101) having at least one opening (2a; 2b; 103) being defined through said lateral support plate (1, 101), forming lateral support for at least one item (3; 4). The base plate (5; 102) defining a supportive floor for the at least one item (3; 4), said spacing and locking means (6;103) being configured to hold said lateral support plate (1;101) and said base plate (5;102) in a first extended spaced apart position and to hold said lateral support plate (1;101) and said base plate (5;102) in a second retracted position. The base plate (5; 102) having at least one elevated portion (17; 110) corresponding with the at least one opening (2a;2b;103) in the lateral support plate (1;101), said elevated portion(17;110) filling said opening in said second retracted position.

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Tray

Field of the invention

The invention herein pertains dining trays and particularly pertains to a dining tray that will provide support for various shaped containers for food or beverages stay positioned on the dining tray during use. The invention also pertains a tray that can be converted into having a flat surface and that is suitable for drawing, writing or similar activities.

Background of the invention and objectives of the invention

Due to the fast-paced life style of the world we live in, it has become common practice for millions of people each day to grab a bite to eat on the go. Travelling to and from work, running errands, picking up the kids and shuffling them back and forth to school and extracurricular activities, taking long trips, are examples of times when a sit down meal at home may not be possible. We find ourselves instead eating in our automobiles or bringing our food along with us to eat while watching the kids play soccer or participate in some other activity. During these times, many people patronize a fast-food restaurant`s drive thru or bring along food and beverages to consume in their automobiles or at the ball field. Unfortunately, many people find that eating in an automobile or, for instance, at the ball field, is not convenient and poses certain difficulties such as where to put the sandwich, where to put the French fries, where to put the ketchup and sauces. Placing these items in your lap can be messy at any time and even hazardous while driving.

In conventional travel trays there are no support for the food or beverage containers and while carrying the tray, or balancing it on the lap, the open food containers can easily tilt and spill. The conventional travel trays does not have a support member that provide support to the tray when the tray is placed on the lap.

US8176855 shows a food and beverage tray with one or more drinking bands, retractable legs and/or collapsing tray assembly. The tray has a base tray spaced apart from the drinking bands in the expanded position. The base plate

and the drinking bands do not form a flat surface when the tray is in collapsible position and are therefore not suitable for use as a playboard as a support for other item, like book for drawing, writing etc.
The lateral support plate and the base plate are moved together by gravity when the tray is folded. This could cause injury on the fingers compared to the invention where the two plate are folded in a controllable manner by pressing the two plates together.

Thus a result of the problems and disadvantages associated with conventional travel trays and food containers, the present invention was conceived and one of its objectives is to provide a tray in which a variety of food containers are supported to reduce the risk of tilting and spilling of the containers.

Another objective of the present invention is to provide a tray that is easy to fold without causing any risk of injury.

Another objective of the present invention is to provide a tray that are easy to manufacture and is also relative inexpensive.

It is a further objective of the present invention to provide a tray that provides more stability when placed on the lap.

It is yet a further objective of the present invention to provide a tray that is easy to assemble and disassemble.

It is still yet another objective of the present invention to provide a tray that collapsible into a narrow tray and easy to store when it is not in use.

It is still yet another objective of the present invention to provide a dining tray that is multifunctional in use and that can easily be converted into a play board for instance for writing, drawing, playing, supporting a PC etc.

Various other objectives and advantages of the present invention will become apparent to those skilled in the art as a more detailed description is set forth below.

Summary of the invention

The invention relates to a tray for holding items, such as containers of food or beverage, said tray comprising a lateral support plate and a base plate arranged in a substantially parallel relationship, the tray further having spacing and locking means, said spacing and locking means interconnecting the lateral support plate and the base plate. The invention is distinctive in that the lateral support plate having at least one opening being defined through said lateral support plate. The opening forming lateral support for at least one item, said base plate defining a supportive floor for the at least one item, said spacing and locking means being configured to hold said lateral support plate and said base plate in a first extended spaced apart position and to hold said lateral support plate and said base plate in a second retracted position The base plate having at least one elevated portion corresponding with the at least one opening in the lateral support plate, said elevated portion filling said opening in said second retracted position.

The lateral support plate and the base plate being arranged in substantially parallel relationship, spaced apart in a first extended position gives the item a good lateral support. In the second retracted position, the tray is easy to store or could be used as a tray for playing, drawing, homework, support for tablet or books etc.

In a preferably embodiment of the tray the surface of the lateral support plate and a surface of said elevated portion of the base plate are flush.
This makes the tray very suitable for a supportive tray especially for playing or drawing, homework or playing activities.

In another preferably embodiment of the tray the spacing and locking means includes at least one spacing means that is hingedly connected between the base plate and the lateral support plate, whereby at least a first end of the spacing means is equipped with a sliding hinge.

Another preferable embodiment tray said spacing and locking means includes at least one connection member (122) that is hingedly connected between the base plate (5; 102) and the lateral support plate (1;101), whereby at least a first end of the connection member (122) is equipped with a sliding hinge.
This provides an easy connection between the plates and prevents the plates to detach from each other, the connection also provides the movement of the lateral plate and the base plate relative each other.

Another preferable embodiment of the tray the at least one connection member comprising at least two rods attached in one end to the base plate and lateral support plate, said at least two rods having overlapping sections, said rods are adapted to slide relative each other in the longitudinal direction of the rods. This provides an alternative connection between the lateral support plate and the base plate.

Yet another preferably embodiment of the tray there are arranged four spacing means are arranged in pairs at each short side of the tray. This provides a stable support to the tray.

In yet another preferably embodiment of the tray, the tray comprising at least one resilient member arranged between the lateral support plate and the base plate. This provides a stable support that is also flexible.

In another preferable embodiment of the tray, the resilient member is a spring, such as a helical spring. This provides member that is easy to manufacture and easy to install on the tray. This also provides a supportive tray which is flexible.

In yet another preferable embodiment of the tray, the resilient member is a leaf spring.

In yet another preferable embodiment the tray having multiple resilient members arranged in spaced apart positions between the lateral support plate and the base plate.

In another preferable embodiment of the invention the locking means are arranged between the lateral support plate and the base plate adapted to lock the tray in the second retracted position. This provides a tray that is easy to store when not in use.

In another preferable embodiment of the invention the locking means comprising a hook arranged on the base plate and a protrusion arranged on the lateral support plate, said hook and protrusion are adapted to be coupled together in the second retracted position. This provides an easy coupling between the plates of the tray.

In yet another preferable embodiment of the invention the hook is operated by a push button adapted to release the hook from the protrusion. This provides an easy release and connection between the lateral support plate and the base plate.

In another preferable embodiment of the invention said spacing means are hingedly connected to the base plate in one end and releasable connected to the lateral support plate in the opposite end. This provides an embodiment where the lateral support plate could be released completely from the base plate to be arranged in the second retracted position.

In another preferable embodiment of the invention the tray having at least one support member, said at least one support member is hingedly connected to the side of the base plate facing away from the lateral support plate. This provides a support to the tray when it is arranged in a person`s lap.

In yet another preferable embodiment of the invention, the at least one support member is adapted to be oriented in two positions; a position where the at least one support members is perpendicular to the base plate and a position where the at least one support member are parallel with the base plate. This provides tray with better storage possibilities.

In yet another preferable embodiment of the invention said tray having at least one antiskid element arranged on the side of the base plate facing away from the lateral support plate. This provides better support when the tray is arranged in the lap.

In another preferable embodiment of the invention said tray having an additional groove arranged in the lateral support plate for pencils, rayons or tablets, such as ipad etc. This provides a tray for playing, writing, drawing or provides a support for a tablet when the tray is in the second retracted position.

Brief description of the drawings

The present invention will now be more particularly described by way of example only, with reference to the accompanying drawings, in which:

Figure 1-17 is illustrating a first embodiment of a travel tray according to the invention.

Figure1 shows a perspective view of the first embodiment of the tray with food container and beverage containers positioned in an unlocked manner within the tray.

Figure 2 pictures the different parts of the travel tray in Figure 1 illustrated in an exploded view.

Figure 3 shows a perspective view of the travel tray, underside view of the tray.

Figure 4 shows a perspective view of the lateral support plate or food plate with openings and apertures in the plate.

Figure 5 shows a perspective view of the upper part of the base plate without spacing members.

Figure 6a shows a perspective view of one possible embodiment of the spacing members.

Figure 7a shows a perspective view of the upper part of the base plate with the spacing members in an upright position.

Figure 7b shows a perspective view of another possible embodiment of the fastening means from Figure 7a.

Figure 8 shows a perspective view of the upper part of the base plate with the spacing members arranged in a folded position where the spacing members are parallel with the base plate.

Figure 9 shows a perspective view of the lower part of the base plate without support member.

Figure 10 shows a perspective view of one of the support member.

Figure 11 shows a perspective view of the lower part of the base plate with the support member in an upright position, viewed from the underside.

Figure 12 shows a perspective view of the lower part of the base plate with the support member arranged in a folded position where the support members are parallel with the base plate.

Figure 13 shows a perspective view of the auxiliary plate or drawing plate with an opening in the center of the plate.

Figure 14 shows a perspective view of the tray in a folded position with the auxiliary plate arranged at the upper part of the base plate and lateral support plate arranged at the underside of the base.

Figure 15 shows the tray from Fig 14, viewed from underside of the tray.

Figure 16 shows the tray from Fig14-15 with the support members in an upright position.

Figure 17 shows the tray from figure 16, viewed from the side.

Figure 18 - Figure 24 is illustrating a second embodiment of the tray according to the invention.

Figure 18 shows a perspective view of the second embodiment of the tray , viewed from above with containers.

Figure 19 shows a perspective view of a second embodiment of the tray according to the invention, viewed from below with containers.

Figure 20 shows a perspective view of a second embodiment of the tray according to the invention, shown without containers.

Figure 21a shows a second embodiment of the tray according to the invention, viewed from the top.

Figure 21b shows the connection between the lateral support plate and the base plate.

Figure 22 shows a side view of the tray in the expanded position.

Figure 23 shows the second embodiment of the tray in the retracted position, viewed from above.

Figure 24 shows the tray in the second retracted position, viewed from the side.

Figure 25a shows the tray in second retracted position, topside view.

Figure 25b shows a cross sectional view of the tray in the second retracted position, viewed from the short side.

Figure 26 shows the tray in the second retracted position, viewed from the short side.

Figure 27 shows the tray in the second retracted position, viewed from the long side.

Figure 28-29 shows the different positions of the support member attached to the tray, seen from below.

Detailed description of the invention

Referring now to the drawings, wherein like reference numerals designate corresponding structure throughout the views.

Fig. 1 is a side view of a preferred embodiment of the invention showing a tray 20 with a lateral support plate or food plate 1 with openings 2a, 2b. The openings 2a, 2b have a shape complementary to the lower part of food containers 3 or beverage containers 4, so that the containers can fit in the openings 2a, 2b. There could be several openings in the lateral support plate 1 of different sizes to match with different container sizes 3, 4. A base plate or central plate 5 is arranged below the lateral support plate 1 in a suitable distance from the lateral support plate 1. The base plate defining a floor to the containers 3, 4. The lateral support plate 1 and base plate 5 are connecting with each other through at least one spacing member 6. Figure 1 shows two spacing members 6 having shape as an arch with two free ends 7 (shown in Figure 2). Both ends 7 being hingedly connected to a first side, hereinafter called an upper side of the base plate 5.

The lateral support plate 1 has two rectangular shaped apertures 8 that have approximately the same width as the spacing members 6. At least a portion of the spacing members 6 are adapted to be inserted through the apertures 8 to

make a releasable connection between the lateral support plate 1 and the base plate 5 when the spacing members 6 are extending upwardly from the base plate 5.

Support members 10 are hingedly connected to the base plate 5 at the second side, hereinafter called an underside of the plate 5.

An auxiliary plate or a drawing plate 9 is releasable connected to the underside of the base plate 5. The auxiliary plate 9 having a rectangular or similar shaped opening 11 (shown in Fig 2) centrally oriented in the auxiliary plate 9 that allows the support member 10 to extend downwardly from the base plate 5. The individual parts of the tray 20 is now described further in the following figures.

Figure 2 shows the different parts of the tray 20 illustrated in an exploded view without the food and beverage containers 3, 4. The lateral support plate 1 with openings 2a, 2b and apertures 8, the spacing members 6, the base plate 5 with fastening means 18 to connect the spacing members 6 with the base plate 5. Similar fastening means are shown in Fig 3 to connect the support member 10 to the base plate 5.

The base plate 5, the support member 10 and the auxiliary plate 9 are situated below the lateral support plate 1.

Figure 3 is illustrating the tray 20 seen from a bottom view where the fastening means 12 are shown connected to the support members 10 at the underside of the base plate 5. The connection of the auxiliary plate 9 to the base plate 5 is also shown in Figure 3.

Figure 4 is illustrating the lateral support plate1 of the tray 20. The lateral support plate1 is shown with one square or rectangular opening 2a in the middle of the first plate. This opening 2a is for instance suitable for food containers 3 or similar. At both sides of the opening 2a the two longitudinal rectangular apertures 8 are arranged. There are also arranged different holes 2b with form and size similar to the shape of the food containers 3 and the beverage containers 4 to fit in the openings 2a, 2b. It is obvious for a person

skilled in the art that the first plate can be manufactured with other designs or placement of the openings 2a, 2b and apertures 8 suitable for a preferred embodiment of the invention. Along the outer side of the lateral support plate 1, there is preferably arranged short side flanges 13a, 13b and long side flanges 13c, 13d surrounding the lateral support plate1. The flanges 13a-13d extends downwardly (or upwardly) from the lateral support plate1. The auxiliary plate 9 has substantially the same outer design as the lateral support plate with outer short side flanges 29a, 29b (Figure 13) and long side flanges 29c, 29d (Figure 13) extending downwardly or upwardly from the auxiliary plate 9. Both plates 1, 9 are adapted to make a releasable connection with the base plate 5 with the upper part or the lower part of the base plate 5.

Figure 5 is illustrating the base plate 5. The base plate 5 has approximately the same shape as the lateral support plate 1(or auxiliary plate 9) with outer short side flanges 16a, 16b and long side flanges 16c, 16d arranged perpendicular to the base plate 5 around the periphery of the base plate 5. The circumference of the flanges 16a-d are slightly less than the circumference of the outer flange 13a-d or the outer flange 29a-d so that it is possible for the flanges 16a-d of the base plate 5 to be surrounded by a portion of the flange 13a-d of the lateral support plate 1 or a portion of the flange 29a-d on the upper or the lower half of the base plate 5, when the lateral support plate 1 or auxiliary plate 9 are arranged in connection with the base plate 5.

To reinforce the friction between plates 1, 5 there could be arranged longitudinal bosses 14, 15 at the outer surface of the short side flange 16a and similar bosses at substantially the same position at the opposite short side flange 16b, alternatively on the long side flange 16c and long side flange 16d. The bosses 14, 15 are arranged parallel to each other, preferably one boss 14 at the upper part of the flange 16a-d to help keeping the lateral support plate 1 and the base plate 5 together and one similar boss 15 on the lower part of the flange 16a-d to improve the connection between the auxiliary plate 9 and the flange 13. Alternatively, one of the parts may have grooves into which the bosses of the other part may fit. Other arrangement to connect the plates are also possible.

At the center of the base plate 5 there is an elevated rectangular or square surface 17 with the same shape and size as the opening 2a in the lateral support plate 1. This surface may have other shapes defined by the shape of the opening in the auxillary plate 9.

Fastening means 18 are arranged at both long sides of the elevated surface 17 of the upper side of the base plate 5 to attach the spacing members 6 to the plate 5. The fastening means could have cubical shape and are arranged with holes 20 in the center. These holes have a cylindrical shape. The fastening means 18 are arranged on both sides of the elevated surface, the openings of the holes 20 are facing towards each other.

Figure 6 shows the spacing member separate from the tray. The spacing member 6 has a form as an arc with the two free end 7 facing downwards. These ends 7 having each a cylindrical journal 21a and is arranged on the outer surface 24 of the spacing member 6, extending outwardly form the outer surface 24. The cylindrical journal 21a are arranged in the cylindrical hole 20 of the fastening means 18, forming the hinged connection. The fastening means 18 having a stopper 20c arranged adjacent the side of the fastening means 18 facing the elevated surface. This ensures that the spacing means 6 are held in an upright position and prevents any further movement towards the elevated surface 17.

The fastening means 18 could be arranged adjacent the elevated surface 17 or in a distance from the elevated surface 17.

The short side of the elevated surface 17 could be adjacent the long flanges 16c, 16d of the base plate 5 or there could be a little space between them.

Another possible embodiment of the invention is that the holes in the fastening means have a curved surface on the sides facing towards the elevated surface and the base plate 5. The two remaining sides having perpendicularly straight lines. (This is not shown in the figures)

The upper surface 21b of the journal 21a is then a straight line. The straight line 21b of the journal 21a in combination with the straight sides of the hole 20 implies that the spacing member 6 can have two positions when connected to the base plate 5. A force must be applied to the spacing member 6 to change the position.

The hole 20 could also have a totally cylindrical shape on all sides and the journal 21a could have a corresponding cylindrical shape. Other arrangements or placement of the fastening means 18 are also possible embodiments of the invention.

On each side of the outer surface of the spacing member 6, at a preferred distance from the ends 23 there is arranged a shoulder 22 and a boss 25. The shoulder s 22 works as stoppers or space providers for the lateral support plate 1 when the spacing members are placed in the apertures 8. The bosses 25 create a stronger connection between the lateral support plate 1 and the spacing member 6 to prevent the lateral support plate 1 from sliding off the spacing member 6. The lateral support plate 1 clicks into place between the shoulder 22 and the boss 25. The spacing member 6 could have other designs to obtain the desired function of the tray 20. For instance could the spacing member 6 be design differently with only one connection to the base plate 5 and the other end of the spacing member 6 connected to the lateral support plate 1, this being a possible embodiment of the invention. There could also be other arrangements of the spacing member 6 with other designs of the holding means than shoulders 22 and bosses 25. For instance, there could be a notch with a distance so that the lateral support plate 1 could fit in the notch instead of the bosses 25 in order to hold the lateral support plate 1 steady, in addition to the shoulder 22.

Another possible embodiment of the space member is that the space member having shape as a bow with a straight member with legs extending obliquely downwards at both sides of the top member towards the journals at the free ends. The shoulders 22 and bosses 25 are arranged on the legs 23b at a suitable distance from the top member 23a (not shown).

In figure 7a the spacing members 6 are shown attached to the base plate 5. The spacing members 6 are shown in the upright position, perpendicular to the first plate 1 with the shoulder s 22 arranged in a preferred distance from the base plate 5.

Figure 7b shows another possible embodiment of the fastening means of the spacing members 6. A snap coupling 18 having holes 20 with cylindrical shapes 20b similar to the fastening means 18 in Figure 5. The snap coupling 18 having an opening at a top 20a of the snap coupling. The opening 20a is adapted to match the size of the journal 21a so that it can be pressed into the hole 20. Forces must be applied to release the spacing member 6 from the base plate 5.

Figure 8 shows the same base plate as figure 7a but with the spacing members in a collapsible position so that the spacing members 6 are resting on the upper surface of the base plate 5 and arranged parallel with this plate 5. The size of the spacing members 6 and the distance from the elevated plate 17 is dimensioned so that the spacing members 6 are lying within the flange 16a, 16b, 16c, 16d of the plate 5 or the outer boundary of the base plate 5.

Figure 9 shows the base plate 5 viewed from below. At this side two pair of hinge blocks 12a, 12 b are arranged symmetrically from a centerline 26 of the plate. The hinge blocks 12a having a greater distance between them than the hinge blocks 12b, causing that the support members 10 are inclined relative to each other. The hinge blocks 12a, 12b have the same design as the hinge blocks 18 of the spacing members 6 arranged on the upper side of the base plate 5.

The hinge blocks 12a, 12b could also be arranged as snap couplings 12a, 12b similar to the snap couplings 18 described in Figure 7b and are adapted to connect the support members 10 to the base plate 5.

Figure 10 shows the support member10 adapted to be connected to the fastening means 12a, 12b. The support member 10 having a bow shape with one horizontal member 26 and two vertically arranged legs 27a arranged upwardly from the horizontal member 27b. At the free end of each of the vertical legs 27a there are arranged a cylinder 28a with a straight part 28b at the downward side of the cylinder 28a. The cylinder 28a is extending outwardly perpendicular to the outer surface of the leg 27a. The cylinder is adapted to engage the opening of each of the hinge blocks 12a, 12b in the same way as the hinge blocks 18 of the spacing means 6. The support member 10 according to the present invention could also have another shape than the described bow-shape, this being embodiments of the invention. j

Figure 11 shows the support members 10 connected to the hinge blocks12a, 12b on the base plate 5. The support members 10 are arranged perpendicular to the base plate 5. The support members 10 are adapted to be arranged between thighs when the tray 20 is placed in a person`s lap. The inclined position of the support member 10 gives a better ergonomic support for the tray than if the support members 10 are arranged parallel. The support members 10 could also be arranged parallel, this being also a possible embodiment of the invention.

Figure 12 shows the support members folded to a position parallel with the surface of the base plate 5. The flange 16a, 16b, 16c, 16d is extending downward below the edge of the base plate a suitable height so that the folded support members 10 fits in a cavity defined between the lower part of the base plate and the auxiliary plate 9.

The base plate could also be designed with a submerged portion (not shown) at the underside corresponding to the elevated surface 17. The support members are preferably arranged so that they fits in the submerged portion when they are arranged in the folded position.

Fig 13 shows the auxiliary plate 9 with flange parts 29a, 29b, 29c, 29d surrounding the edges of the plate 9. The auxiliary plate 9 is in Figure 13

oriented with the flange 29a-d extending downwardly and is adapted to be releasable connected to the upper part of the flange 16a-16d of the base plate 5, in the same way as the lateral support plate 1, when the spacing members are folded down. The auxiliary plate 9 has a rectangular or square opening 11 to match the size and shape of the elevated plate 17 so that the surface of the elevated plate 17 is flush with the surface of the auxiliary plate 9 when the auxiliary plate 9 is attached to the base plate 5. The tray 20 is in this arrangement suitable as a support for drawing, writing, PC support or similar activities that require a flat, firm surface. There could also be arranged submerged shoulders (not shown) on the outer rims 17' (Fig 8) of the elevated plate 17. The submerged shoulder will give support to edges 9' on the auxiliary plate 9 which are positioned against the elevated plate 17.

Figure 14 shows the auxiliary plate 9 connected to the upper part of the base plate 5 and the spacing members folded between the base plate 5 and the auxiliary plate 9. The spacing member 6 fits in the cavity defining the space between the base plate 5 and the auxiliary plate 9. The lateral support plate 1 is connected to the lower part of the base plate 5. The support members 10 are arranged inside and fitted in the space between the base plate 5 and the lateral support plate 1.

Figure 15 shows the foldable arrangement of the tray from Figure 14 viewed from the underside of the tray 20.

Figure 16 and 17 shows the same arrangement as Figure 14-15 with the auxiliary plate 9 arranged on the upper side of the base plate 5 and the lateral support plate 1 arranged on the underside of the base plate 5. In Figure 17 the support members 10 are arranged in the upright position perpendicular to the base plate 5.

Figure 18-29 shows a second embodiment of a tray according to the invention.

Figure 18-19 are illustrating the tray with items, such as containers for food 3 or beverage 4, viewed from different angles. In this embodiment the tray 100

comprising a lateral support plate 101 with openings 103 (shown in Figure 20). The openings 103 could have different configuration suitable for any shape of the containers of food or beverage 3, 4. For instance, there could be one opening suitable for a drinking cup, one opening suitable for a container with food, one opening suitable for sauce or other flavorings, etc. there could also be grooves or openings for pencils or support for tablet, books etc. The tray 100 is in this position in a first expanded spaced apart position.

The lateral support plate 101 is connected to a base plate 102 arranged beneath the lateral support plate 101. The lateral support plate 101 and the base plate 102 are connected together through at least one connection member 122. This connection member 122 is best shown in Figure 21b and will be described further below.

In the embodiment shown in the Figure there are arranged two connection members 122 on each side of the tray, but other arrangement of the connection members 122 are possible.

Other connection arrangements are also possible, for instance, there could be a rod part that is in one and attached to the lateral support plate and a similar rod part attached to the base plate. The free ends of the rod parts are adapted to have slidingly overlapping sections adapted to move the plates (101, 102) relative to each other. There could also be arranged several intermediate overlapping rod parts in addition to the rod parts attached to the plates. This arrangement could be a telescopic cylinder arrangement with parts that are adapted to slide within each other. It could also be an arrangement where there are protrusions sliding within slots. (This embodiment are not shown in any figures)

In addition, the connection arrangement could also have a locking arrangements in order to lock the tray in the first extended spaced apart position. The telescopic arrangements could for instance have protrusions in one rod part adapted to engage holes in the corresponding rod part or there could be notch in the slot for receiving the protrusion.

The positioning of the connection members could be different in both embodiments, the connection members could be position, both on the long side or the short side of the tray.

In addition or as a replacement for the connection member 122, there could be arranged at least one resilient member 104, for instance a spring, a helical spring or leaf spring or similar arranged between the lateral support plate 101 and the base plate 102. These resilient members 104 are in one end connected to the base plate 102 and in the other end connected to the lateral support plate 101.

In the figures 18-23, the resilient member shown as a helical spring 104 is arranged at or near the corner of the base plate and the first member but other arrangement of the resilient members 104 are also possible. The helical spring in the embodiment shown in the Figures 18-23 the helical spring is attached around protrusions in the lateral support plate 101 and the base plate 102.

In another embodiment of the invention, a leaf spring or similar arrangement could be attached to either the lateral support plate 101 or the base plate 102. The leaf spring and the attached plate could optionally be made in one piece. The other free end is abutting the opposite plate to induce the spacing between the plates 101, 102. This free end could be abutting the opposite plate or the free end could be arranged in latch grooves at the opposite plate. The spring could for instance be made of plastic or metal. The spring could optionally be molded or integrated in the attaching plate. .

The connection members 122 and the resilient members 104 constitutes spacing means between the lateral support plate 101 and the base plate 102 in the first extended spaced apart position. The spacing means also acting as a spacing limiter, limiting the allowable distance between the plates.

The resilient member could optionally be fixedly attached to both plates. The resilient member could then also be the connection member. This makes the

connection members superfluous. A tray with this arrangement could be a possible embodiment of the invention.

The tray could also be arranged without the resilient member also as an embodiment of the invention. The connection member will then preferably have a locking arrangement (described above) in the first spaced apart position so that the lateral support plate and the base plate are kept in the spaced apart position.

The tray 100 comprises further a snap connection 105, 106, 107 between the lateral support plate 101 and the base plate 102. In the embodiment shown in the figure, the snap connection comprises a push button or a snap fastener 105 connected to the outside of the base plate 102. The push button 105 is further attached to a hook 106 arranged on the inside of the base plate 102. At the inside of the lateral support plate 101 it is arranged a protrusion107 (shown in Figure 19) in a position corresponding with the hook 106. The protrusion 107 is adapted to receive the hook 106 in order to maintain the hook 106 and protrusion 107 in a connected position. The hook 106 could be released from the protrusion 107 by pressing the push button 105. The invention is not limited to this snap connection. Other connection arrangement between the lateral support plate 101 and the base plate 102 to keep the tray in a second retracted position is possible embodiments of the invention.

The Figure 18 also shows elevated portions 110. The elevated portions 110 are arranged at the surface of the base plate 102 facing the lateral support plate 101. The elevated portions 110 are corresponding with the openings or holes 103 in the lateral support plate 101 so that when the lateral support plate 101 and the base plate 102 are pushed together, the elevated portions 110 match the openings so that the surface of the elevated portions 110 and the surface of the lateral support plate 101 are flush.

Figure 19 shows the tray from Figure 18, viewed from below. There are support members 108 arranged at the side of the tray facing away from the lateral

support plate 101. These support members 108 could be attached to the base plate 102 through a hinged connection similar as described in the first embodiment. The shape could also be similar to the shape described in the first embodiment of the tray 20. Possible embodiment of the support member 10 described in the first embodiment shown in Figure 1-17 are also possible embodiment for the support member 108 shown in Figure 19.

The support member having two positions. A first position where the support member 108 is are arranged in grooves 114 in the base plate 102. The support member are in this position arranged parallel with the surface of the tray 100. The shape of the grooves 114 are correspondent with the shape of the support member 108 so that the support members 108 in this position are arranged within the base plate 102.

The support member 108 could also be arranged in a second position where the support member are arranged perpendicular to the base plate 102. The support members 108 are in this position adapted give support to the tray 100 by placing the support members between the thighs of the user. This provides a more stable support for the tray100.

In addition to the grooves 114 and support members 108, there could also be arranged regularly spaced rubber band 109 or antiskid members. (This is also shown in Figure 28-29) on the surface of the base plate 102 facing away from the lateral support plate 101. Several rubber bands or other antiskid members 109 could be arranged parallell to each other at the surface of the base plate 102. Alternatively it could be arranged in small grooves in base plate 102.

Figure 20 shows the tray without the containers with food and beverage 3, 4. The elevated portions 110 in the base plate 102 and the openings in the lateral support plate 101 are shown in greater detail in this Figure.

The Figure 21a shows the tray 100 according to the second embodiment, topside view. In addition to the openings 103 in the lateral support plate 101, there could also be arranged a pencil groove 115 in the surface of the lateral

support plate 101 facing away from the base plate 102. This pencil groove 115 could be suitable for pencils, crayons 111 etc. the pencils or crayon 111 could be held in the groove by a ribbon 117 or other fastening means.

A release mechanism could be116 are arranged in one end of the groove 115. This release mechanism 116 are adapted to be pushed in one end in order to tilt the other end upwards. The pencils or crayons 111 are then moved upwards out of the groove 116 together with the release mechanism 116. The pencil groove 115 are an optional feature of the tray 100.

There groove could also be arranged as an opening through the lateral support tray 101. This could be suitable for support of tablet for instance.

The figure 21b shows a cross sectional view of the connection between the lateral support plate 101 and the base plate 102.

The at least one connection member 122 is hingedly attached in one base end 114 to the base plate 102. In an opposite end 112, the connection member 122 is hingedly connected to the lateral support plate 101. The first end 112 is connected to the lateral support plate 101 arranged within a slot 113 in the lateral support plate 101.
The first end 112 is adapted to slide between the end positions of this slot 113. The figure shows two connection members 122 sliding in opposite directions within respective slots 113, there could also be one connection member 122 arranged at each side, this being an embodiment of the invention.

The figure 21b further shows two connection members 122 with hinged attachments to the lateral support plate 101 and the base plate 102 at each short side of the tray 100. In the first extended spaced apart position the first ends 112 of the connection members are arranged in the innermost positions of the slot 113 facing each other. There could optionally be a notch arranged in these end of the slots adapted to lock the tray in the first extended spaced apart position.

Other connection arrangements are described above and could be suitable connection arrangement instead of the shown connection arrangement.

Figure 22 shows the second embodiment of the tray 100, viewed from the short side. In this Figure the shape of the lateral support plate 101 and the base plate 102 are shown. On the short sides of the lateral support plate 101 and the base plate 102 there are first side edges 101a extending from the lateral support plate 101 towards the base plate and base side edges 102b that are extending from the base plate 102 towards the lateral support plate 101.

The lateral support plate 101 having long sides that are extending partly around the first edges 101a and ends in faces 101b.

The base plate 102 having similar shape with long sides that are extending partly around the base side edges 102a and ends in faces 102b. The faces 101b and 102b are spaced apart when the tray 100 is in the first extended spaced apart position.

Figure 23 shows the tray 100 in the expanded position, viewed from the long side.

The tray 100 according to the second embodiment of the invention having two positions: The first extended spaced apart position, as described above in Figure 18-23 where the lateral support plate 101 is spaced apart from the base plate 102 by the spacing means 122, 104. The tray 100 provides support to the containers of food and beverage in this position.

A second position will be described further in the Figure 24-27. This position is a second retracted position where the lateral support plate 101 and the base plate 102 are moved towards each other so that the surface of the plates 101, 102 facing each other are located adjacent.

Figure 24 shows the tray 100 in the second retracted position. In this position the lateral support plate 101 and the base plate 102 are moved towards each

other so that the faces 101b of the lateral support plate 101 and the faces 102b of the base plate 102 are abutting each other. The first side plates 101a are arranged outside of the base side plates 102a so that when the tray 100 is second retracted, the side plates 101a, 1012b are juxtaposed (The positions of the side plates 101a, 101b are illustrated in Figure 23).

The elevated portions 110 of the base plate having substantial equal shapes than the openings 103 in the lateral support plate 101. The elevated portions 110 are therefore clogging the openings and are forming a smooth surface where the surface of the lateral support plate 101 and the surface of the elevated portions of the base plate 102 are flush

The figure 25a shows the tray 100 with the elevated portions 110 and openings 103, topside view. This shows the same feature as in Figure 21a. The tray 100 is in this figure in the second retracted position.

Figure 25b shows a cross sectional view of the tray100 in the second retracted position.
As shown in the Figure 21b, the tray 100 is retracted to a position where the faces 101b and faces 102b are abutting or to a position where the spacing means 104, 122 are retracted to a lowermost position with as little as possible gap between the lateral support plate 101 and the base plate 102. This could for instance be where the protrusions connected to the resilient members are abutting or another defined lock position.

In this position the first ends 112 of the connection members 122 are forced towards the base plate 102. To obtain the retracted position, the first ends 112 will slide towards the outermost positions in the slots 113 facing away from each other.

The resilient members 104 are also compressed between the lateral support plate 101 and the base plate 102 in the second retracted position.

Figure 26 shows the tray 100, viewed from the short side in the second retracted position. The first side edges 101a having a recess 118 (shown in Figure 22) with similar shape as the push button 105 in order to move the lateral support plate 101 and the base plate 102 together as much as possible.

The figure 27 shows the tray 100 in the second retracted position, viewed from the long side of the tray 100.

Figure 28 shows the support members arranged on the side of the base plate facing away from the lateral support plate 101. The Figures shows the support member 110 in a position where the support members 110 are arranged perpendicular to the base plate 102. The support members 110 could be attached to the base plate 102 through a snap coupling for instance clamps 120 arranged in pairs. The figure shows two pair of clamps connecting each support member to the base plate 101. Other fastening means are also possible for instance the fastening means as described in the first embodiment of the invention.

Figure 29 shows the support member 110 arranged in the grooves 114 (Figure 28) in the base plate 102. The support member 110 could also be connected to the base plate 102 in an additional releasably connection 121 when the support member 110 is arranged in the grooves 114 to prevent the support members 110 to escape from the grooves 119 when the support members 110 are not in use. The arrangement of the support members 110 relative each other are similar to the arrangement described in the first embodiment. The Figure 28-29 also illustrates the rubber band 109 described earlier.

The function of the tray will be now be described.
When the tray 100 is in the first extended spaced apart position, the resilient member 104 are moving the lateral support plate 101 and the base plate 102 away from each other, the connection members 122 providing connection between the plates 101, 102.
In this position, the tray 101 is suitable for supporting items, such as containers for food or beverage 3, 4.

The lateral support plate 101 and the base plate are moved together to a second retracted position. In this position, the hook 106 or other locking means are engaging the protrusion 107 or other locking means in order to lock the tray 101 in the second retracted position. The tray 101 in this position is suitably for storing the tray since it is thinner than in the first extended position. It is also suitable to be used as a play board with because of its smooth surface.

By pushing the bush button 105, the hook 106 is released from the protrusion and the spacing means, that is the resilient member and or the connection member will force the lateral support plate 101 and the base plate 102 away from each other towards the first extended spaced apart position.
The spacing means also acting as a space limiter, limiting the allowable distance between the plates.

The different plates 1, 5 , 9, 101, 102 spacing and locking means 6;25, 122; 104, 105, 106, 107 and support members , 6, 10, 110 in both embodiments of the invention, are preferably molded from a durable plastic although wood, cardboard, molded or pressed metals, or other suitable materials may also be used. The lateral support plate 1, 101 could also be made as a disposable plate.

Although illustrative embodiments of the invention have been disclosed in detail herein, with reference to the accompanying drawings, it is understood that the invention is not limited to the precise embodiments shown and that various changes and modifications can be affected therein by one skilled in the art without departing from scope of the invention as defined by the appended claims and their equivalents.

Patent claims

1.

A tray for holding items, such as containers of food or beverage, said tray comprising a lateral support plate (1;101) and a base plate (5;102) arranged in a substantially parallel relationship, the tray further having spacing and locking means (6;25, 122; 104, 105, 106, 107), said spacing and locking means (6; 25, 122, 104, 105, 106, 107) interconnecting the lateral support plate (1; 101) and the base plate (5;102) c h a r a c t e r i s e d i n that the lateral support plate (1;101) having at least one opening (2a; 2b; 103) being defined through said lateral support plate (1, 101), forming lateral support for at least one item (3; 4), said base plate (5; 102) defining a supportive floor for the at least one item (3; 4), said spacing and locking means (6;103) being configured to hold said lateral support plate (1;101) and said base plate (5;102) in a first extended spaced apart position and to hold said lateral support plate (1;101) and said base plate (5;102) in a second retracted position, said base plate (5; 102) having at least one elevated portion (17; 110) corresponding with the at least one opening (2a;2b;103) in the lateral support plate (1;101), said elevated portion(17;110) filling said opening in said retracted position.

2.

A tray for holding items, such as containers of food or beverage according to claim 1, wherein a surface of the lateral support plate (1;101) and a surface of said elevated portion of the base plate (5;102) are flush.

3.

A tray for holding items, such as containers of food or beverage according to claim 1 or 2, wherein said spacing and locking means (6; 122; 104) includes at least one connection member s (122) that is hingedly connected between the base plate (5; 102) and the lateral support plate (1;101), whereby at least a first end of the connection member (122) is equipped with a sliding hinge.

4.

A tray for holding items, such as containers of food or beverage according to claim 1 or 2, wherein said at least one connection member comprising at least two rods attached in one end to the base plate (102) and lateral support plate (101), said at least two rods (not shown) having overlapping sections, said rods are adapted to slide relative each other in the longitudinal direction of the rods.

5.

A tray for holding items, such as containers of food or beverage according to any one of claim 1-4, wherein said connection members (122) are arranged in pairs at each short side of the tray (20, 100).

6.

A tray for holding items, such as containers of food or beverage according to any one of the preceding claims, wherein said tray (20,100) comprising at least one resilient member (104) arranged between the lateral support plate (101) and the base plate (102).

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A tray for holding items, such as containers of food or beverage according to claim 6, wherein said resilient member is a spring (104), such as a helical spring.

8.

A tray for holding items, such as container of food or beverage according to claim 6, wherein said resilient member (104) is a leaf spring.

9.

A tray for holding items, such as containers of food or beverage according to any one of the claims 6-8, wherein the tray (20, 100) having multiple resilient members (104) arranged in spaced apart positions between the lateral support plate (1;101) and the base plate (5;102).

10.

A tray for holding items, such as containers of food or beverage according to any one of the preceding claims, wherein the locking means (104) are arranged between the lateral support plate (101) and the base plate (102) adapted to lock the tray (20; 100) in the second retracted position.

11.

A tray for holding items, such as containers of food or beverage according to claim 10, wherein the locking means comprising a hook (106) arranged on the base plate (5; 102) and a protrusion (107) arranged on the lateral support plate (1;101), said hook (106) and protrusion (107) are adapted to be coupled together in the second retracted position.

12.

A tray for holding items, such as containers of food or beverage according to claim 10, wherein said hook (106) is operated by a push button (105) adapted to release the hook (106) from the protrusion (107).

13.

A tray for holding items, such as containers of food or beverage according to any one of the preceding claims, wherein said spacing means (6;122) are hingedly connected to the base plate (5) in one end and releasable connected to the lateral support plate (1) in the opposite end.

14.

A tray according to any one of the preceding claims, wherein the tray having at least one support member (10;108), said at least one support member is hingedly connected to the side of the base plate (5; 102) facing away from the lateral support plate (1;101).

15.

A tray according to claim 14, wherein the at least one support member (10; 108) is adapted to be oriented in two positions; a position where the at least one support members (10) are perpendicular to the base plate (5;102) and a

position where the at least one support member (10;108) are parallel with the base plate (5;102).

16.

A tray according to any one of the preceding claims, wherein said tray having at least one antiskid element arranged on the side of the base plate (5;102) facing away from the lateral support plate (1;101)

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A tray according to any one of the preceding claims, wherein said tray having an additional groove arranged in the lateral support plate (1;101) for pencils, rayons or tablet.

18.

A tray according to any one of the preceding claims, wherein said tray (20, 100) having locking means adapted to lock the tray (20; 100) in the first extended spaced apart position.

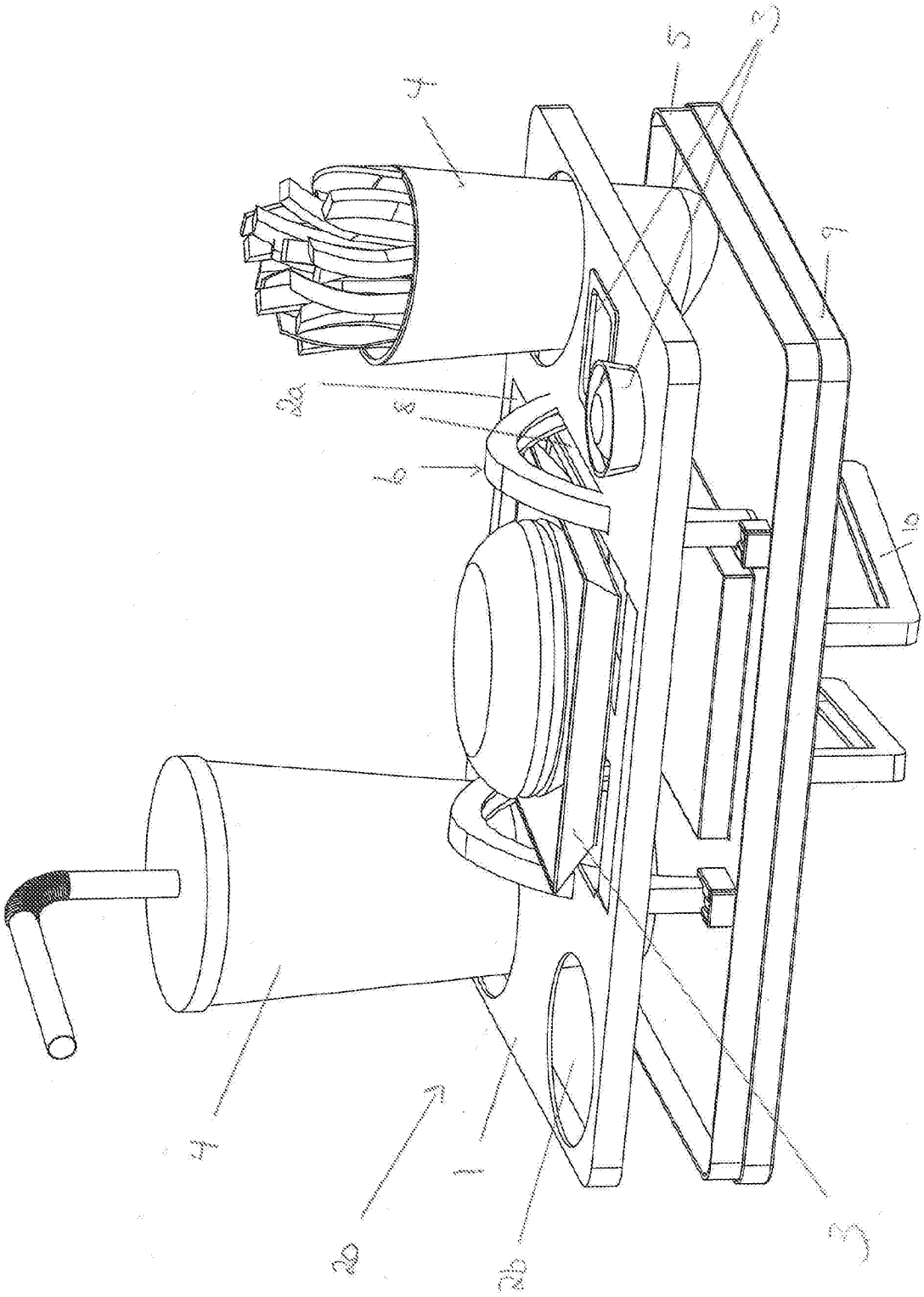

Fig. 1

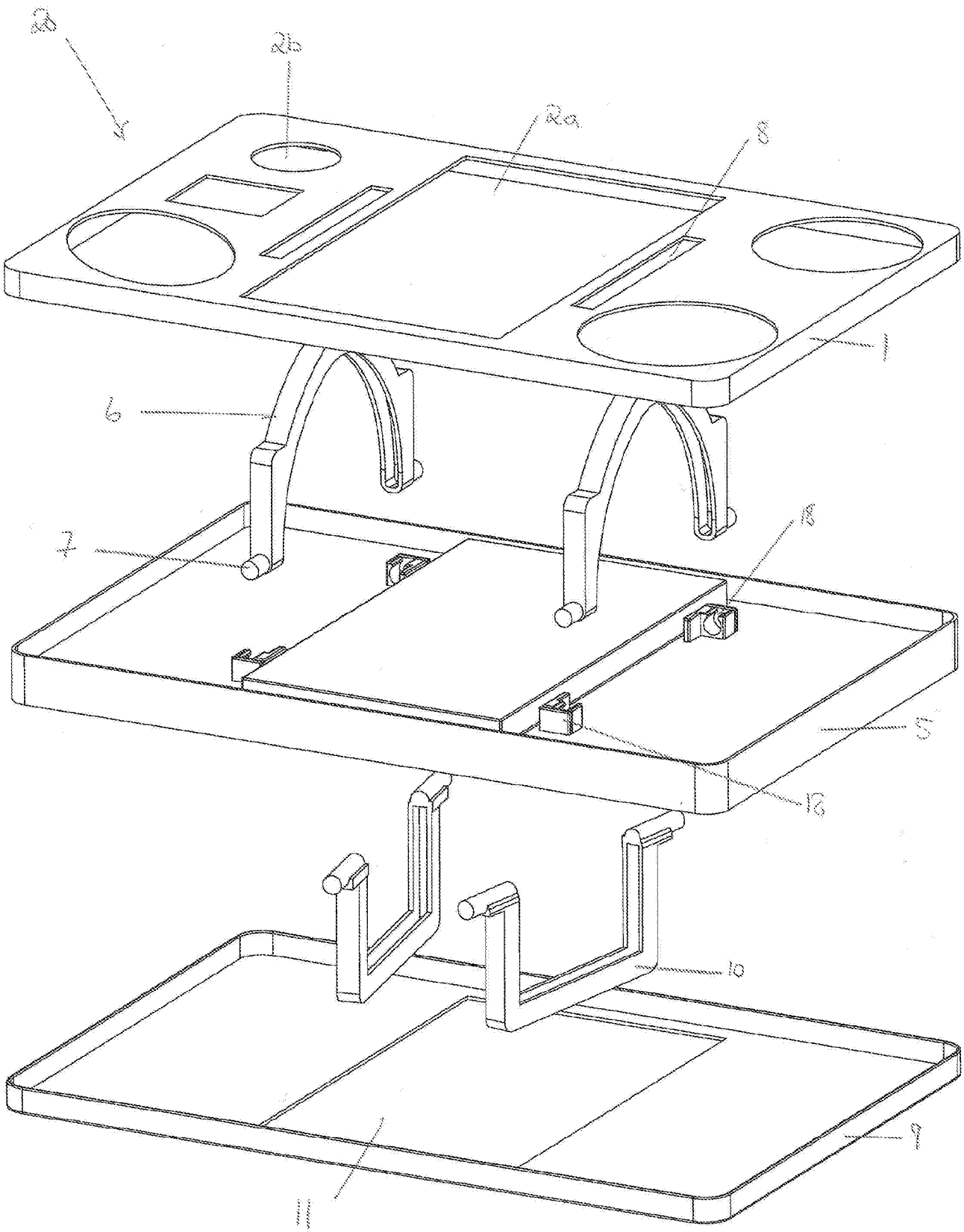

Fig. 2

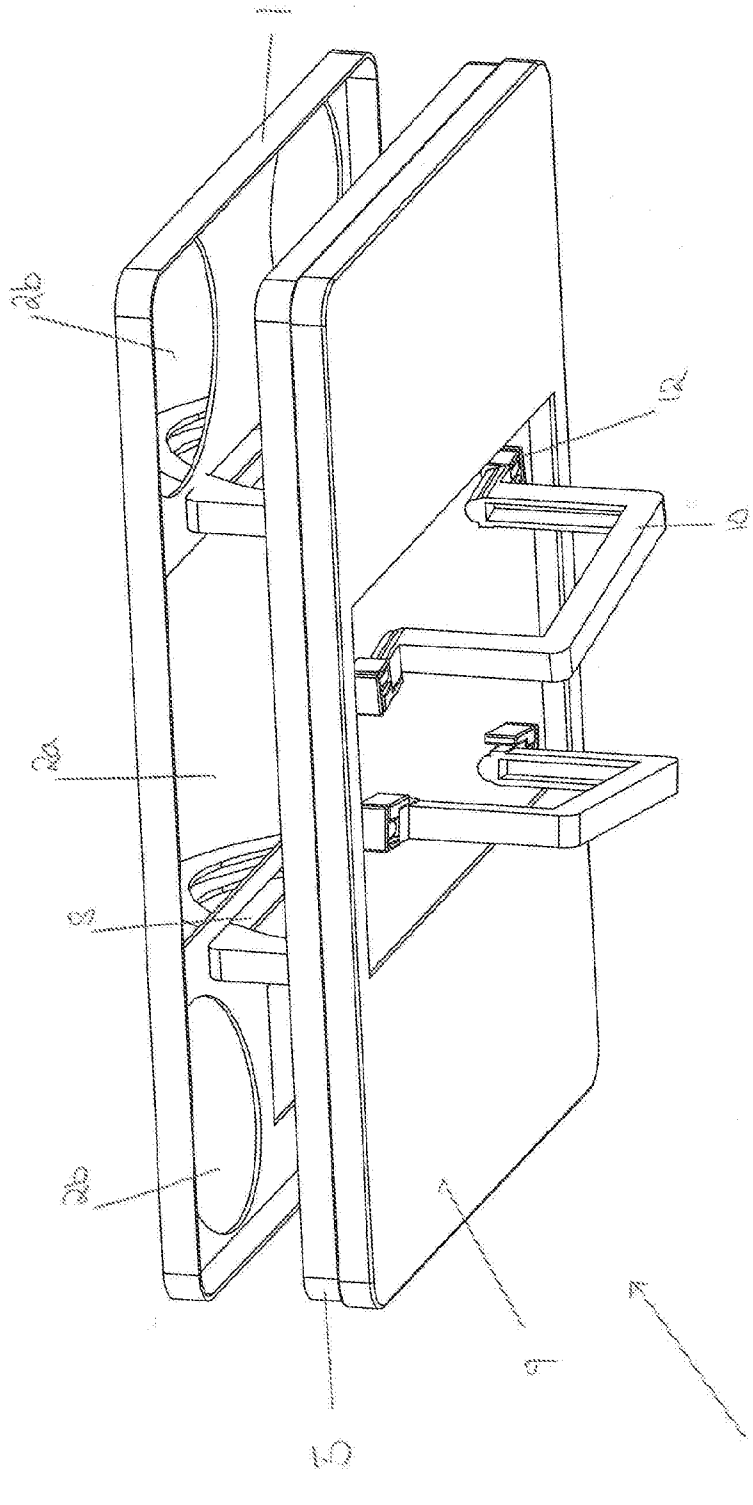

Fig. 3

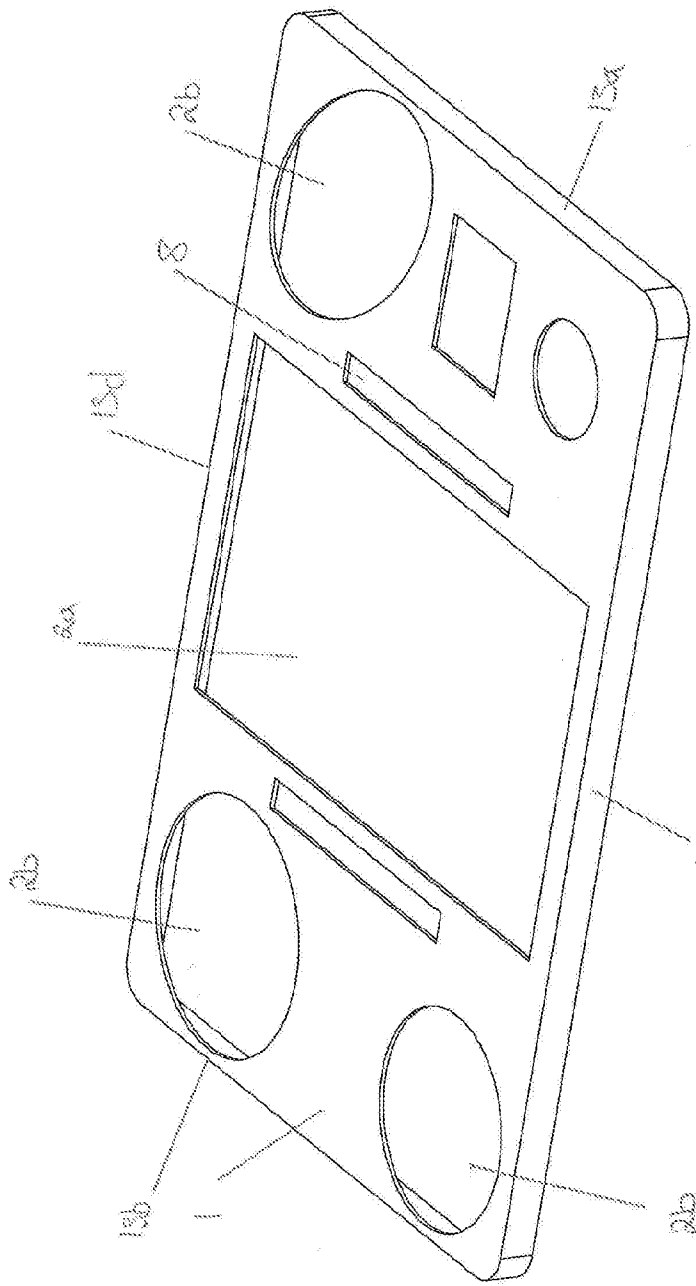

Fig. 4

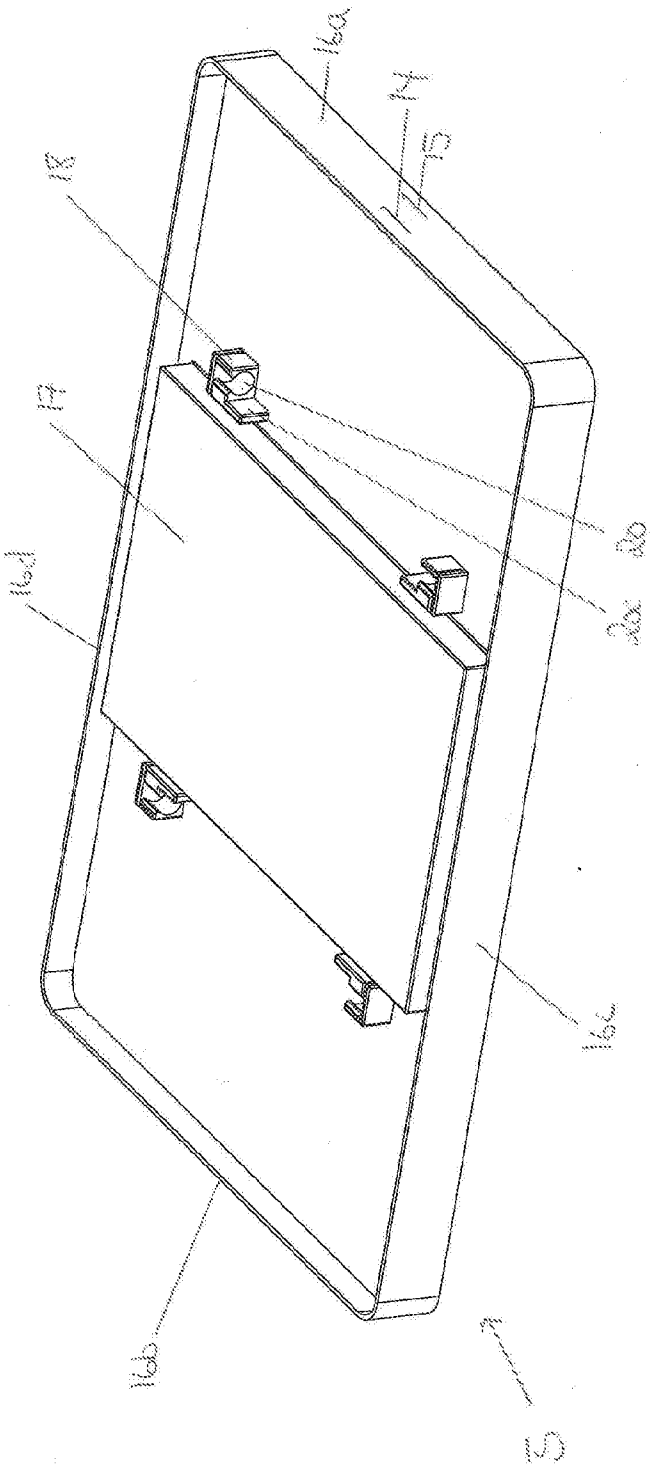

Fig. 5

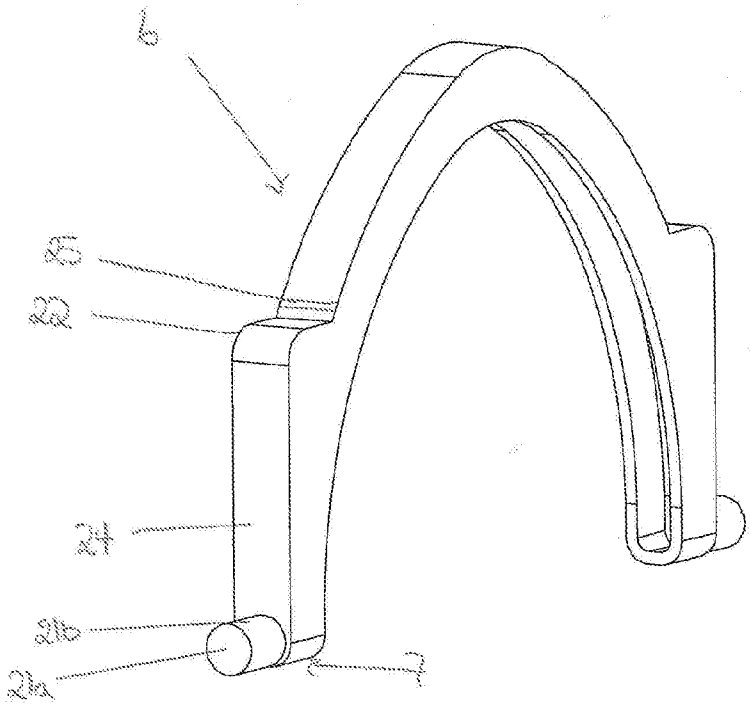

Fig. 6

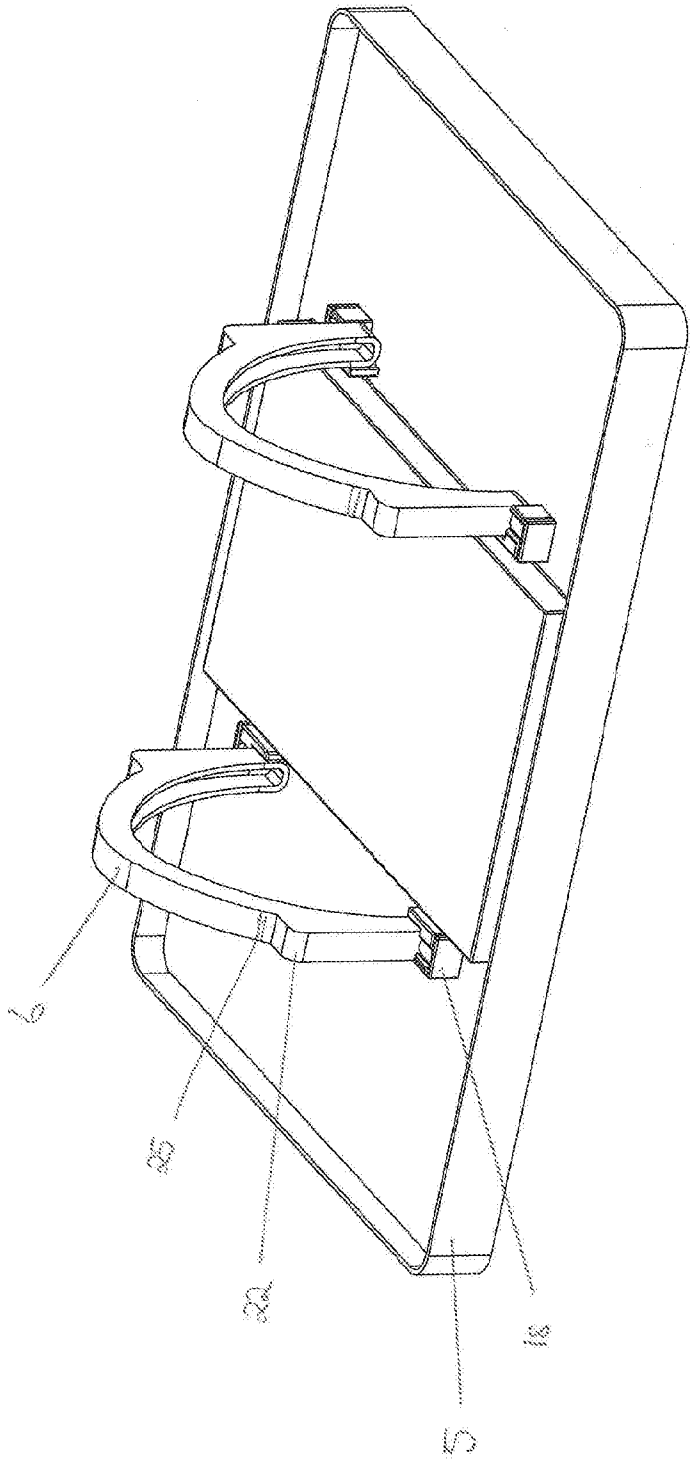

Fig. 7a

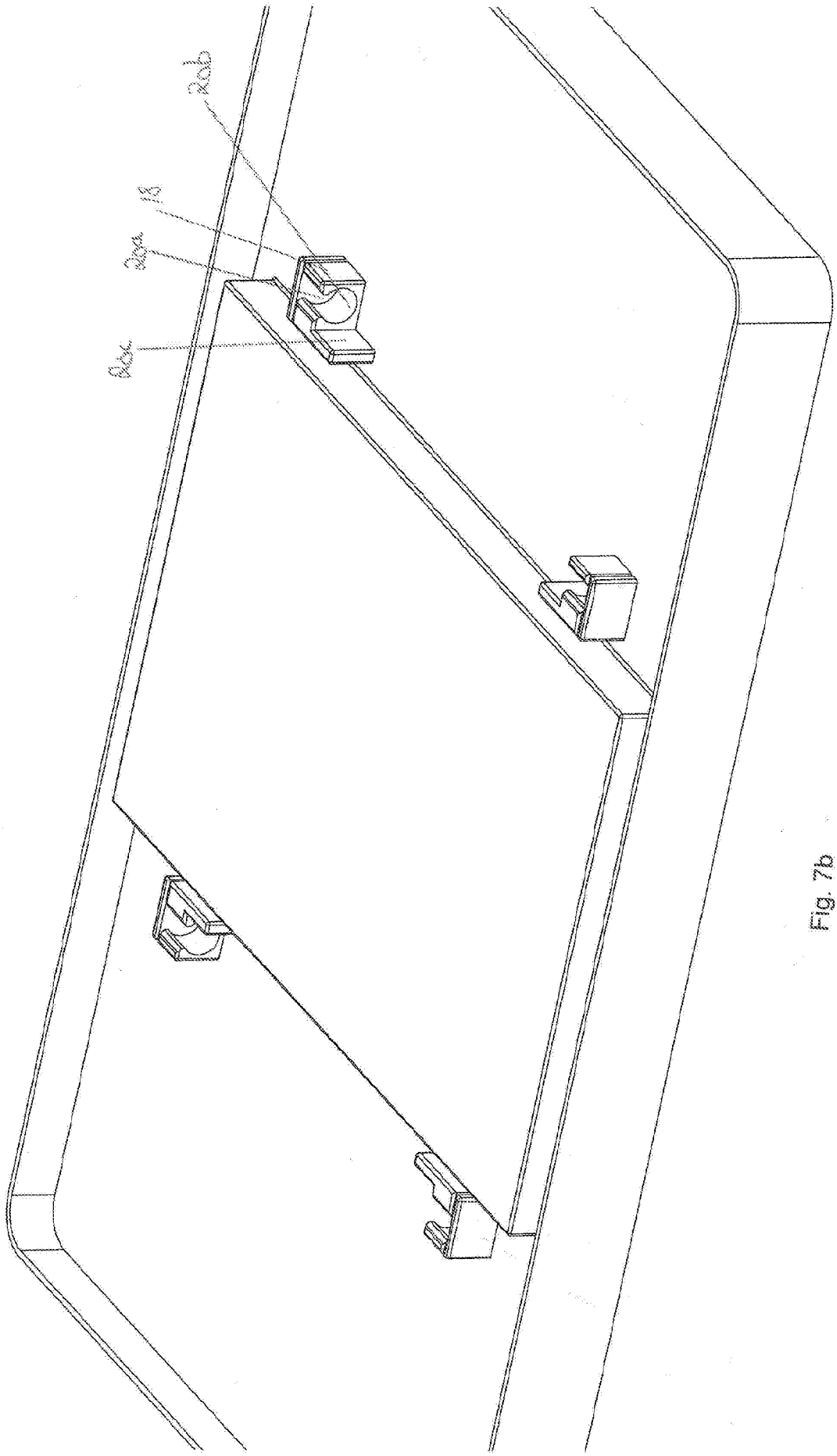

Fig. 7b

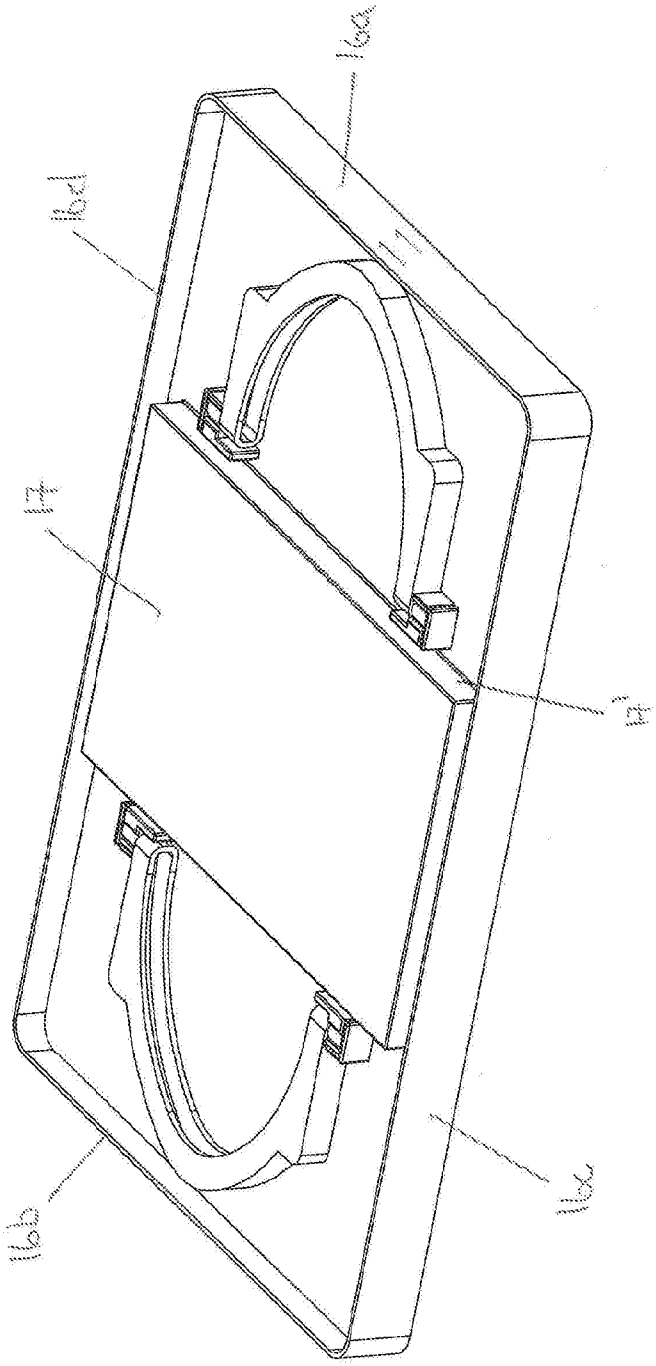

Fig. 8

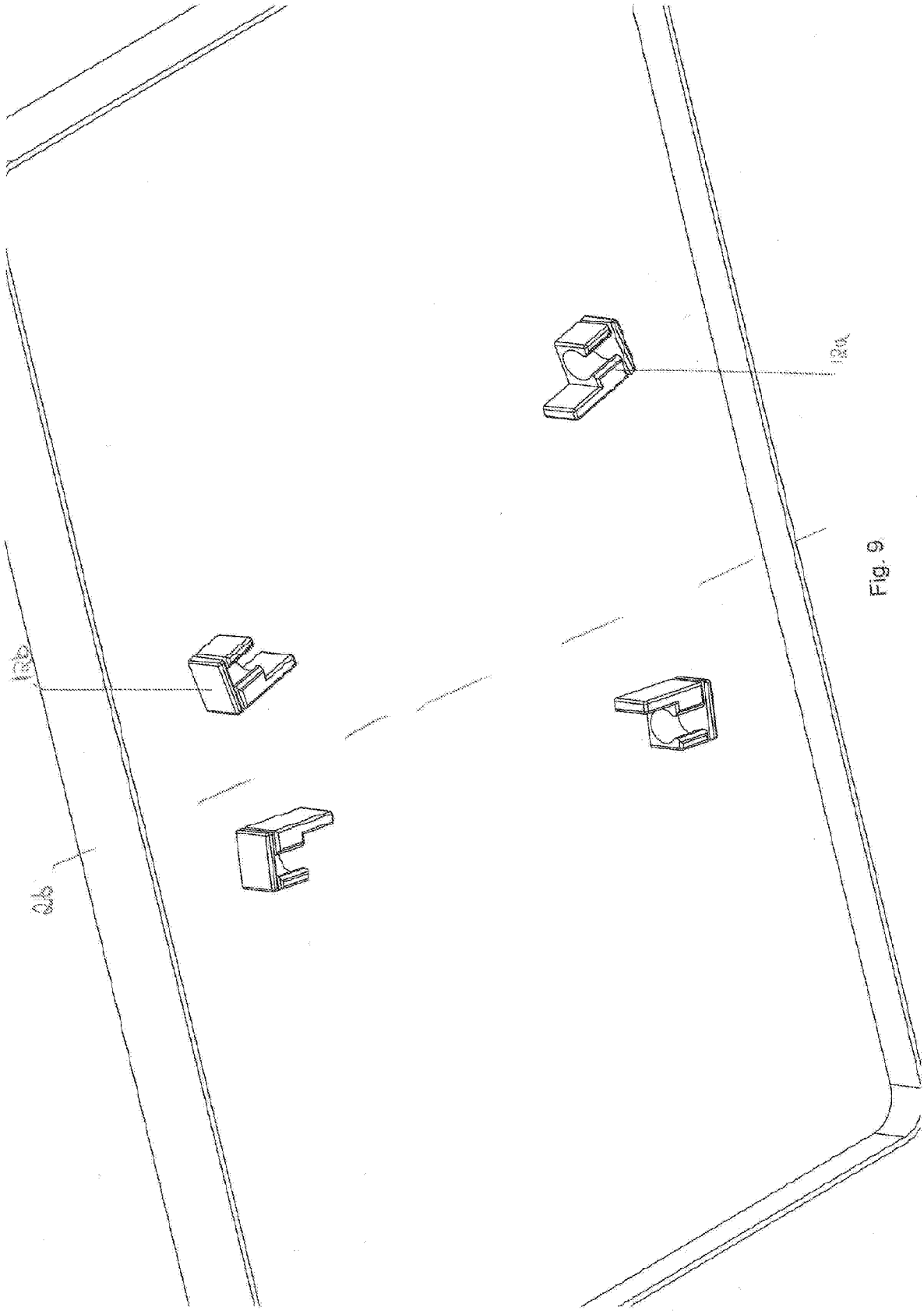

Fig. 9

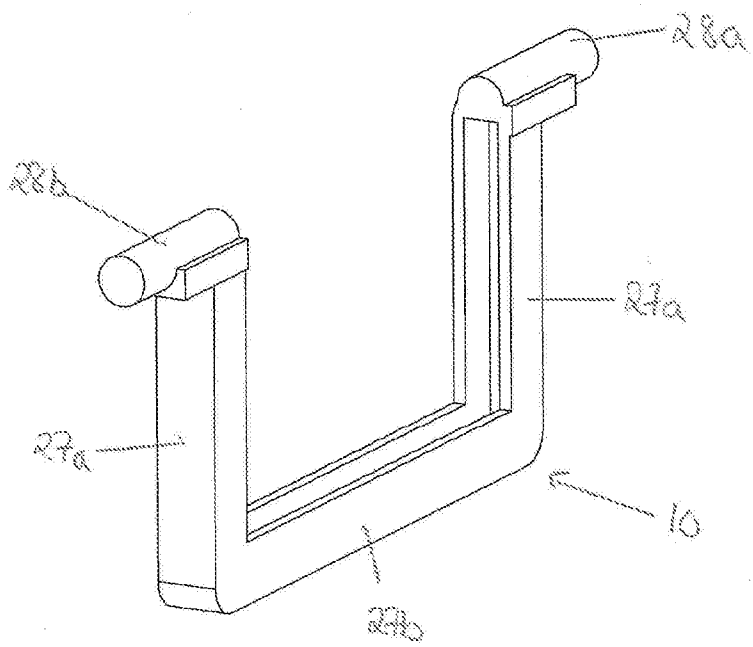

Fig. 10

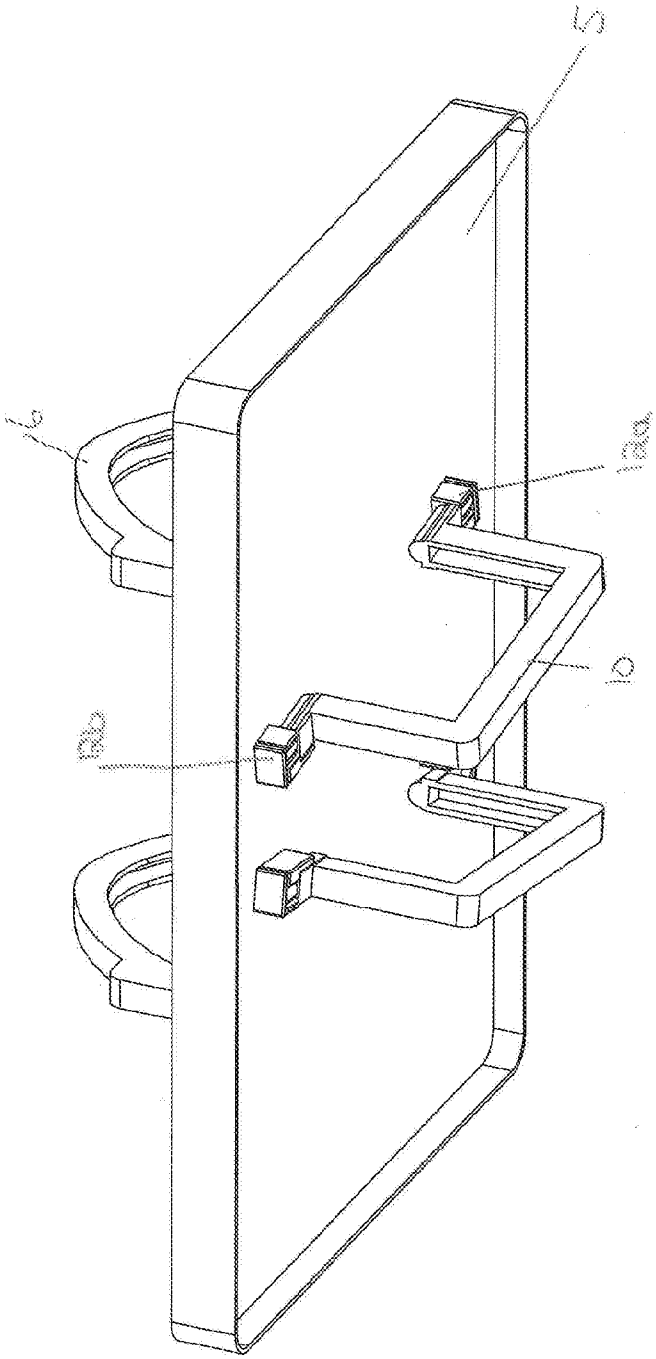

Fig. 11

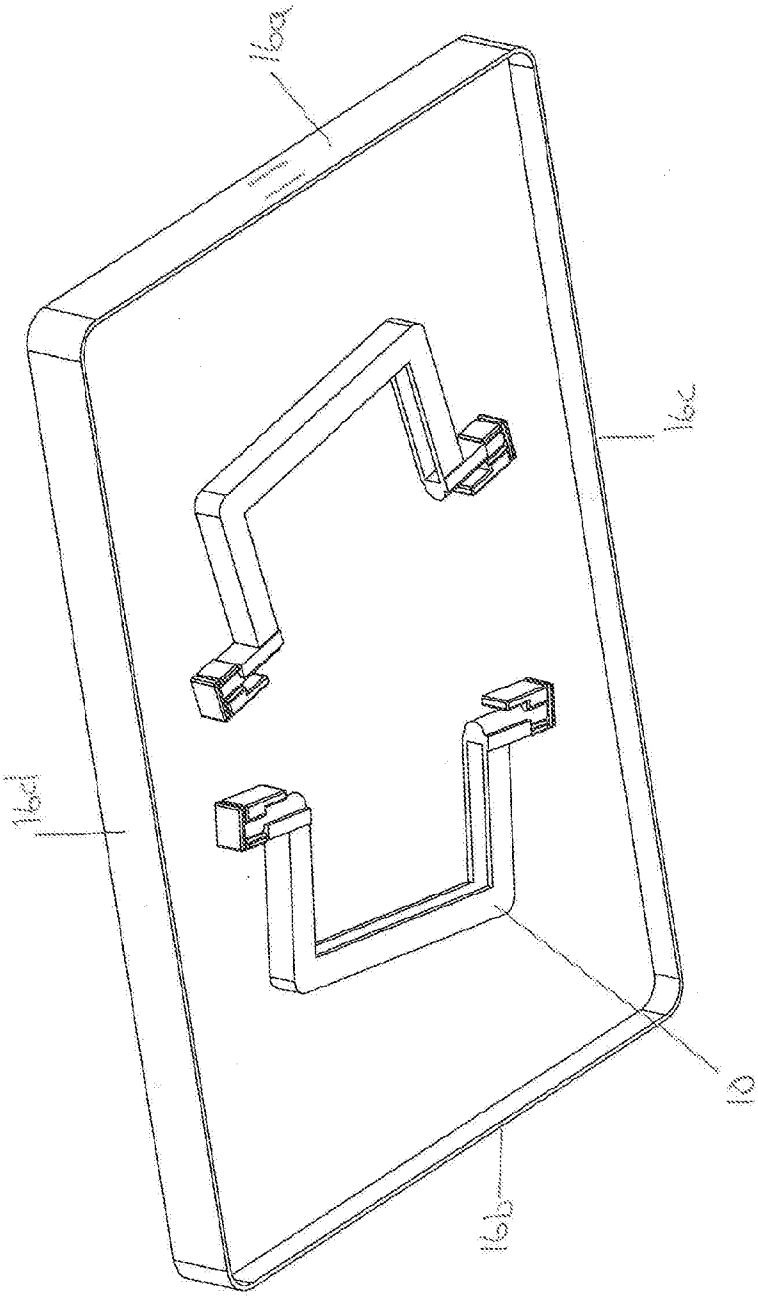

Fig. 12

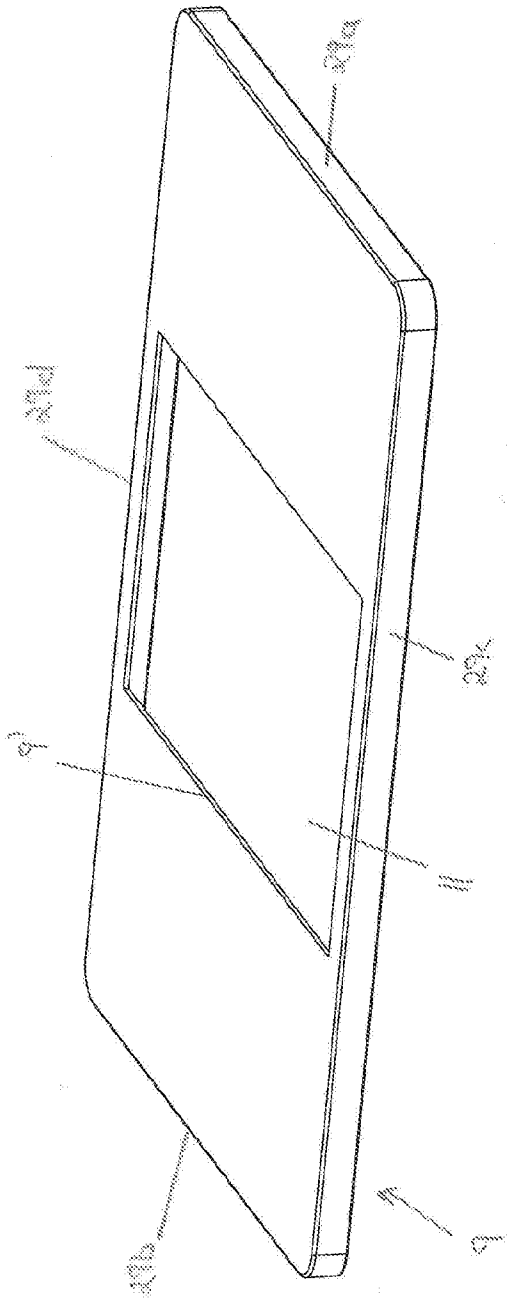

Fig. 13

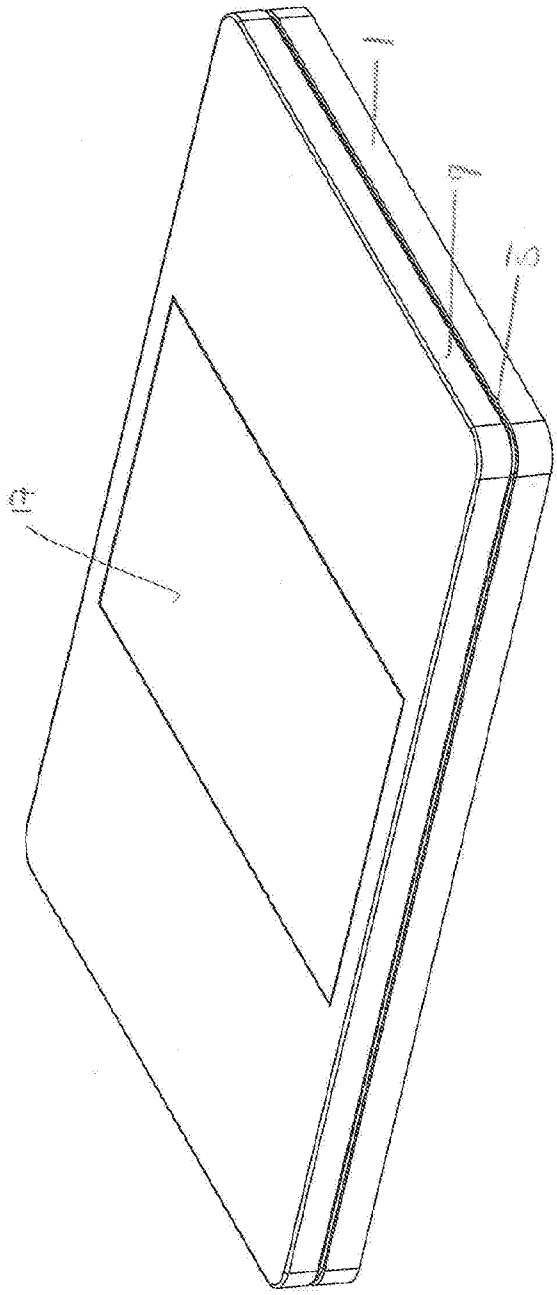

Fig. 14

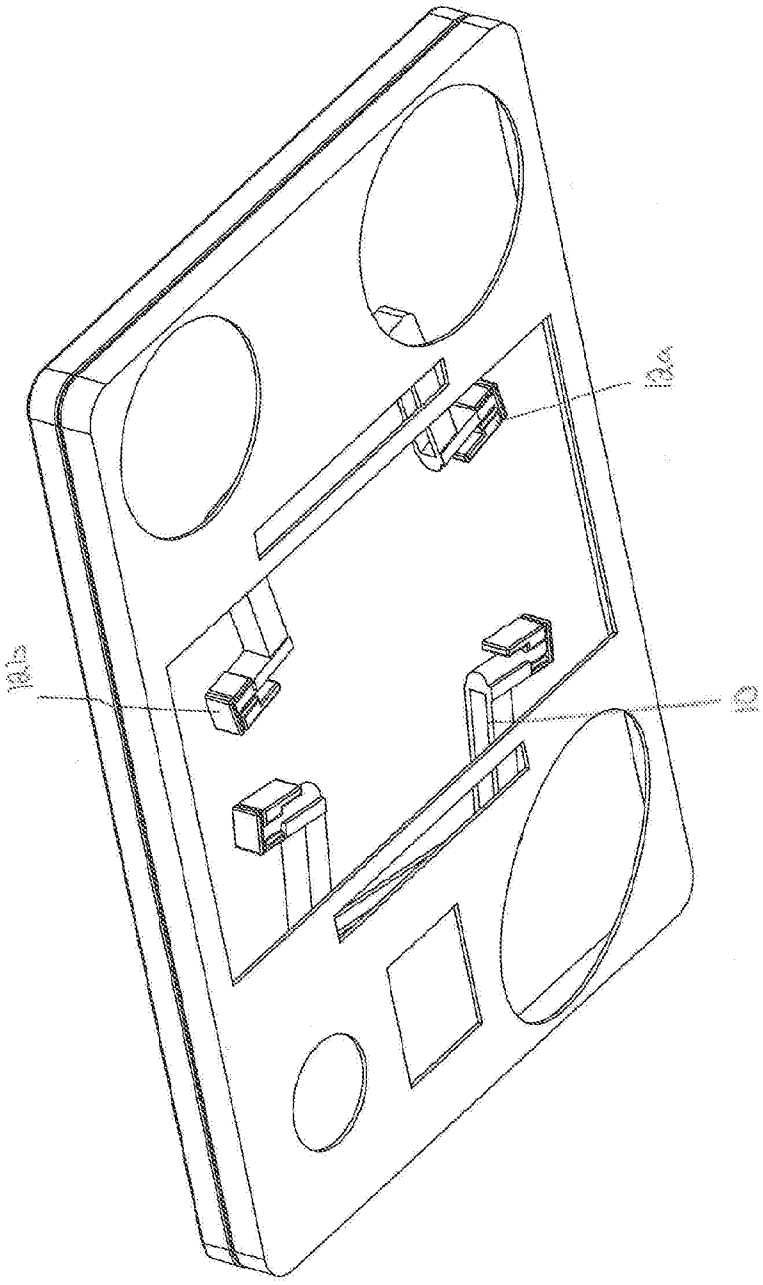

Fig. 15

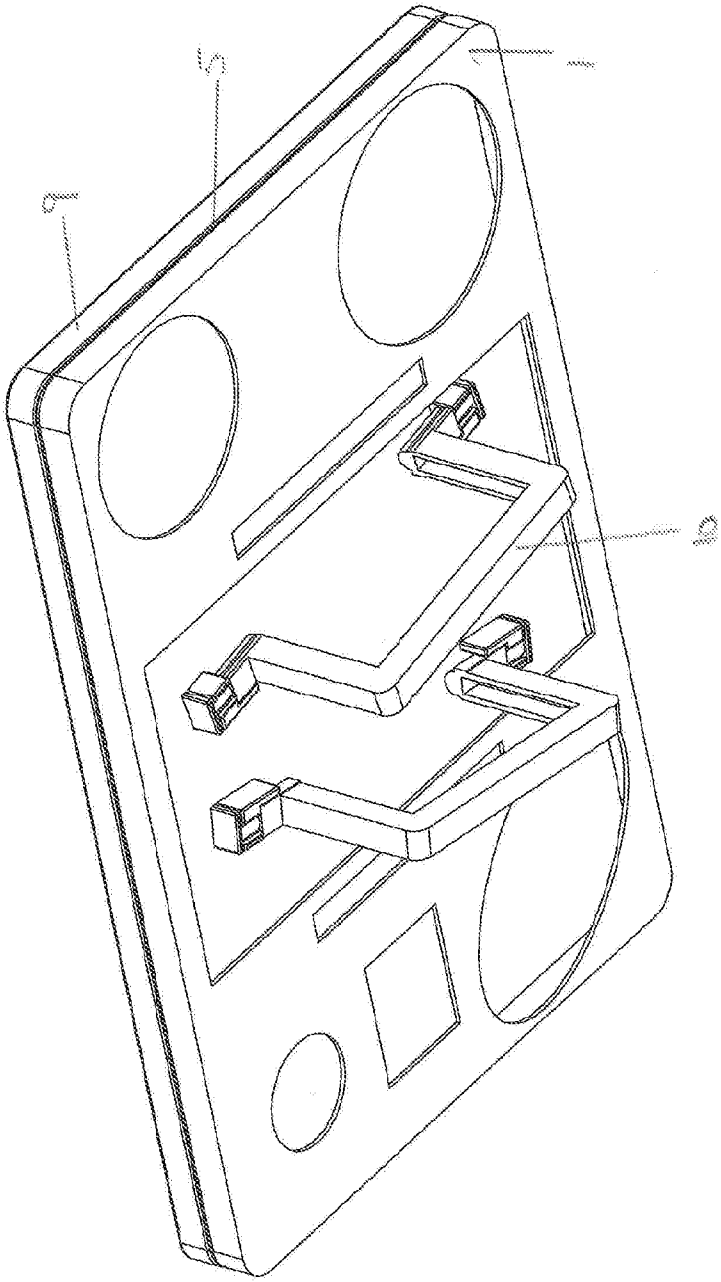

Fig. 16

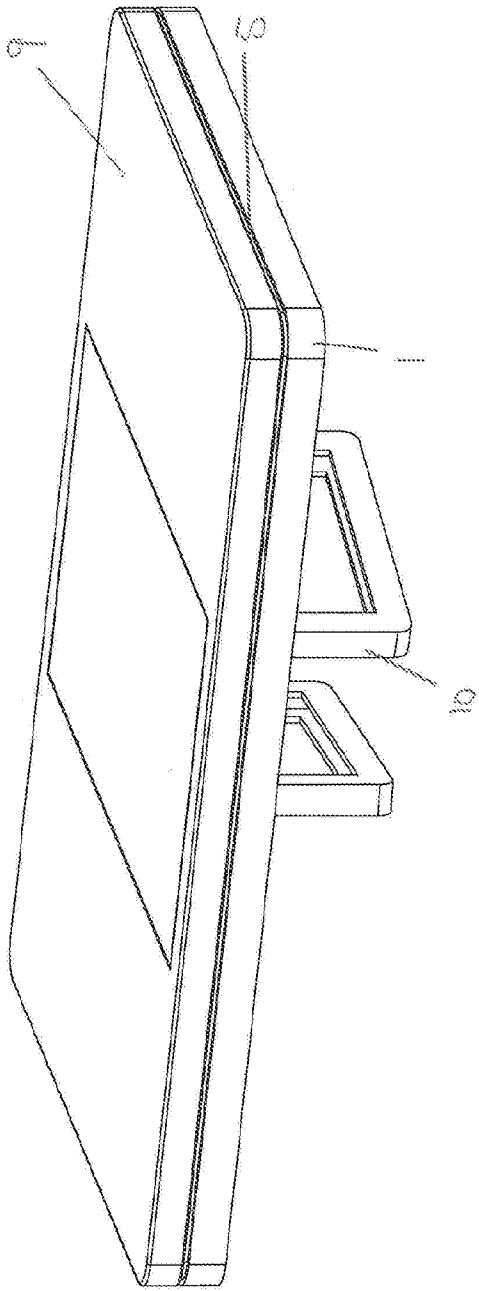

Fig. 17

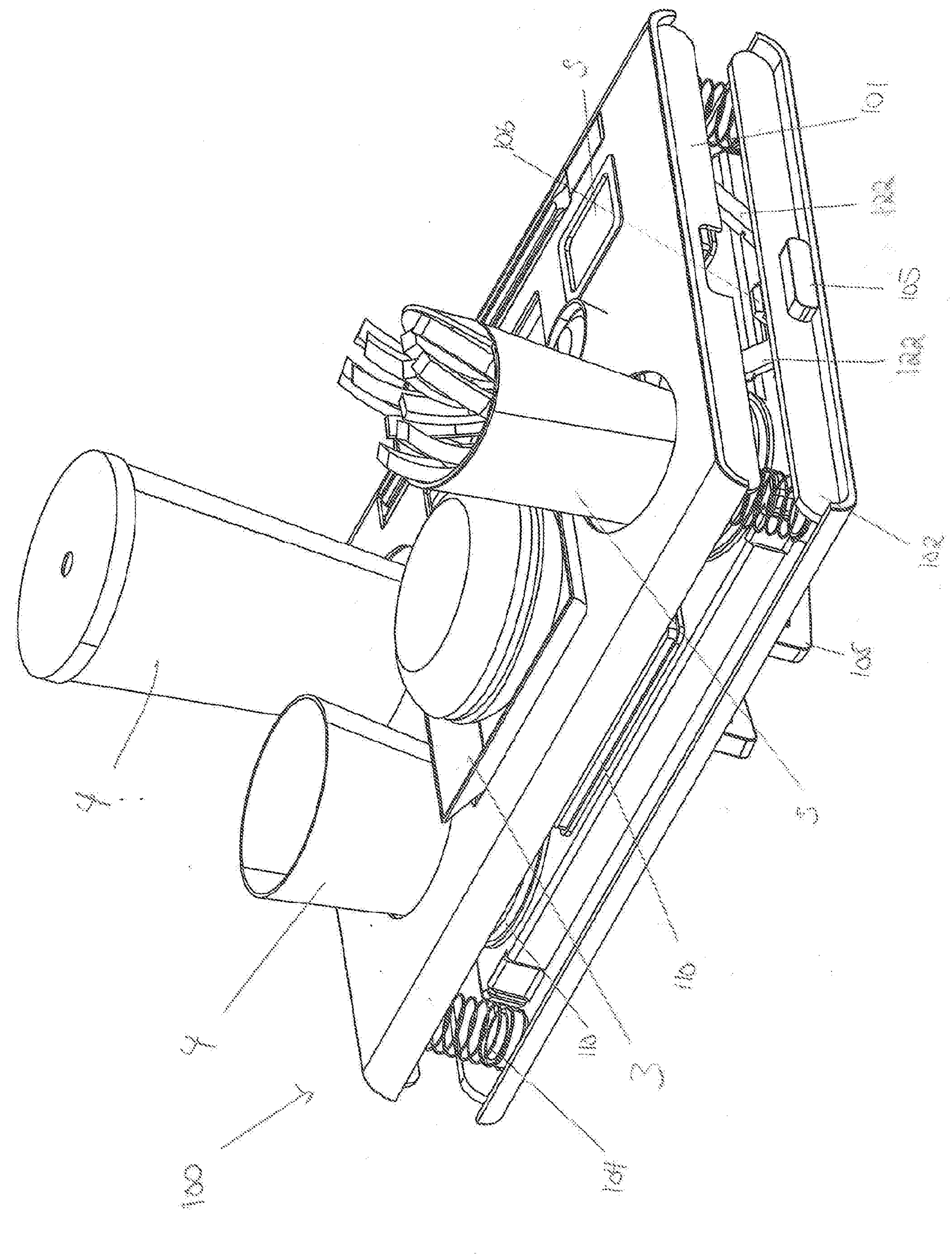

Fig. 18

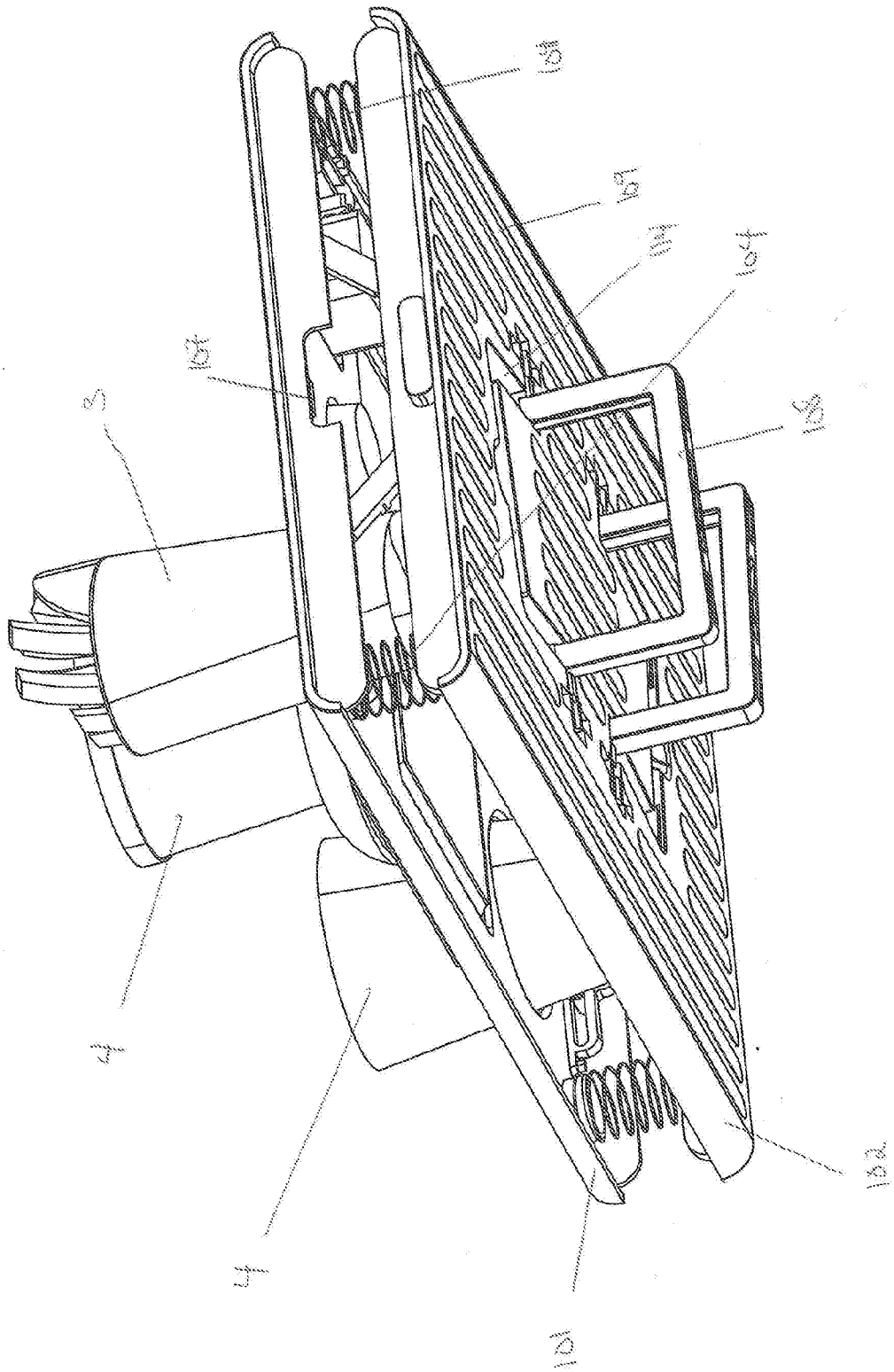

Fig. 19

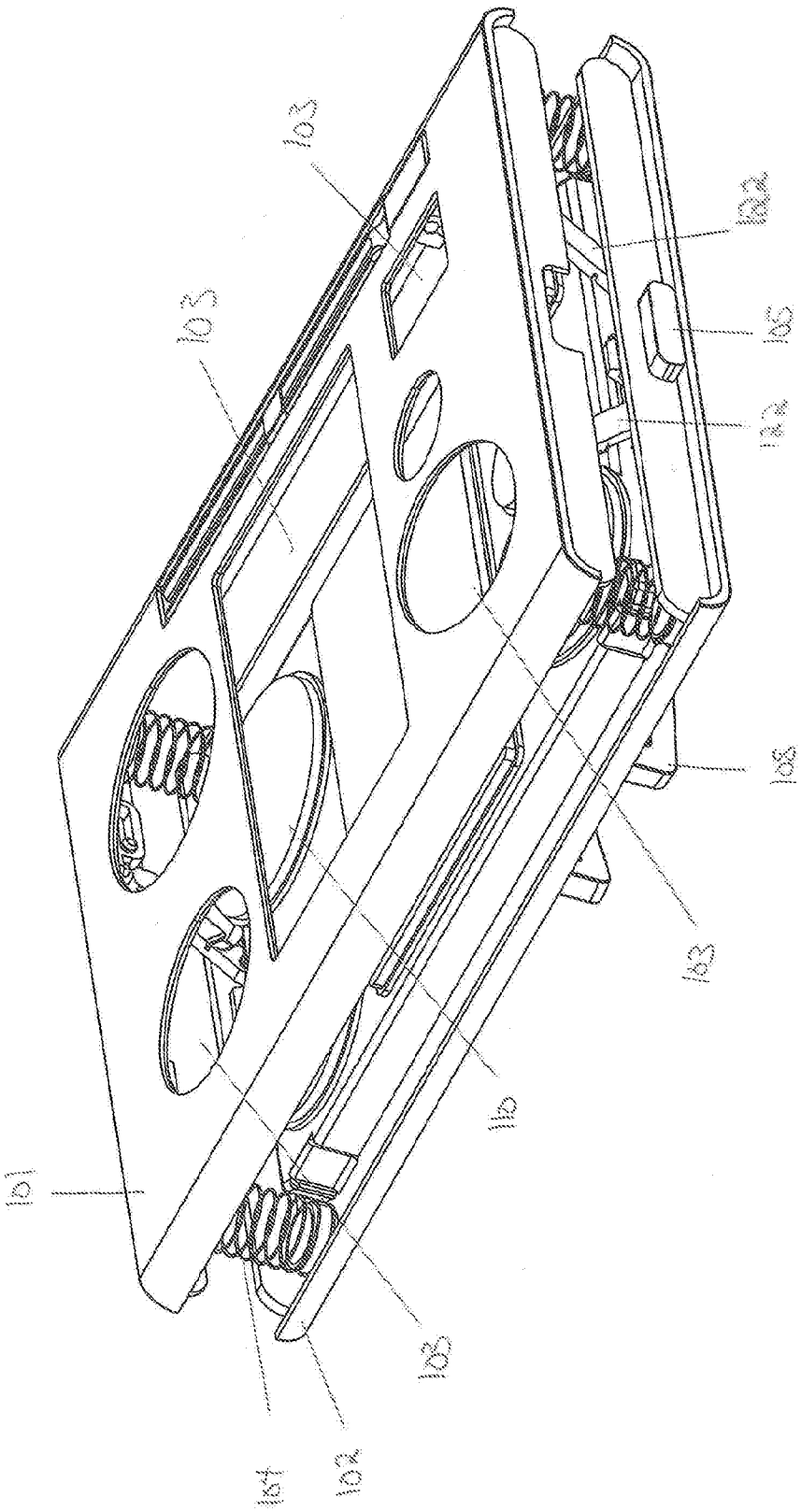

Fig. 20

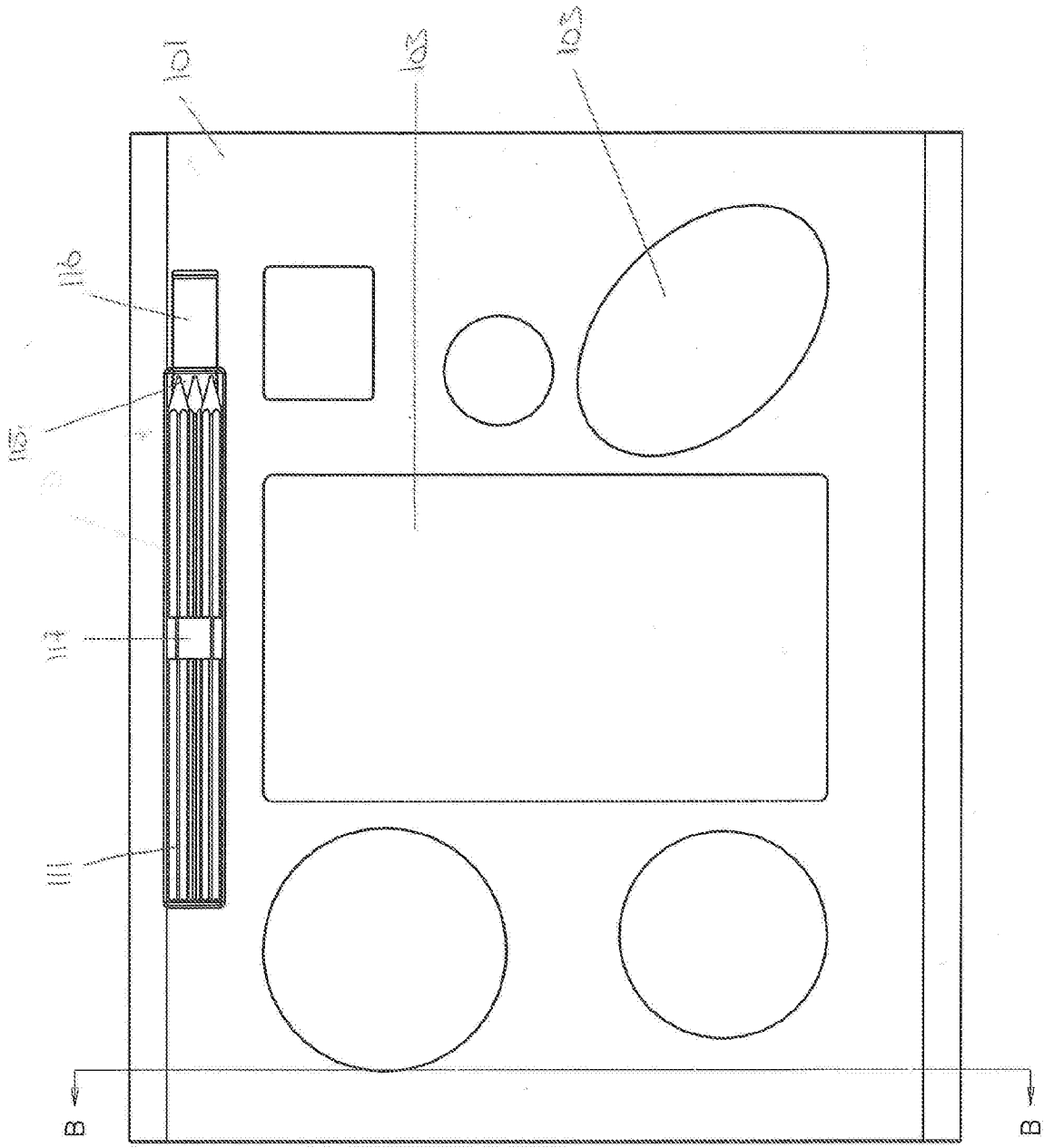

Fig. 21a

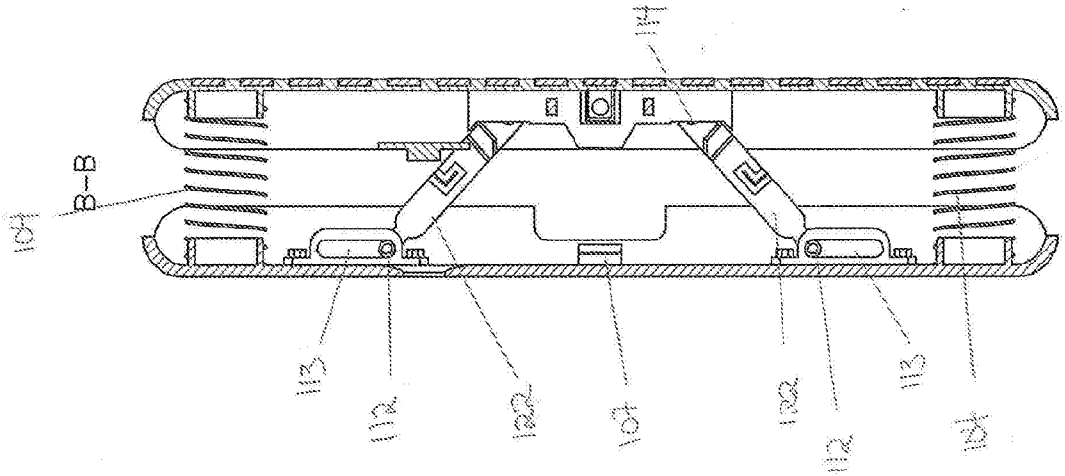

Fig. 21b

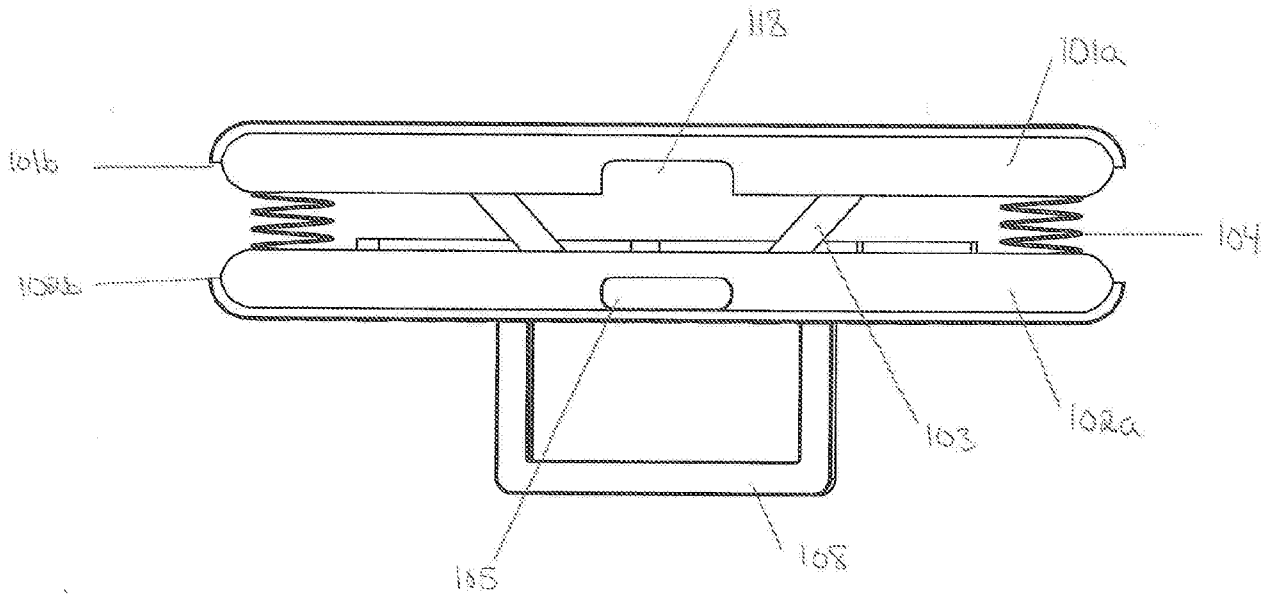

Fig. 22

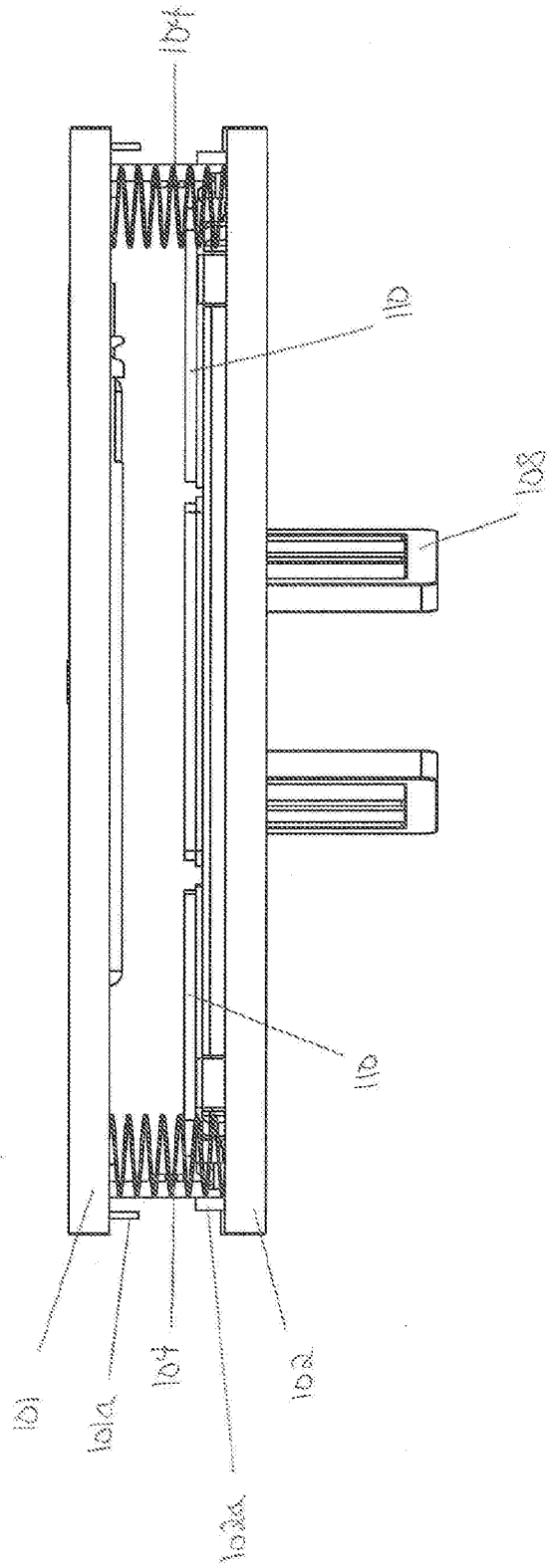

Fig. 23

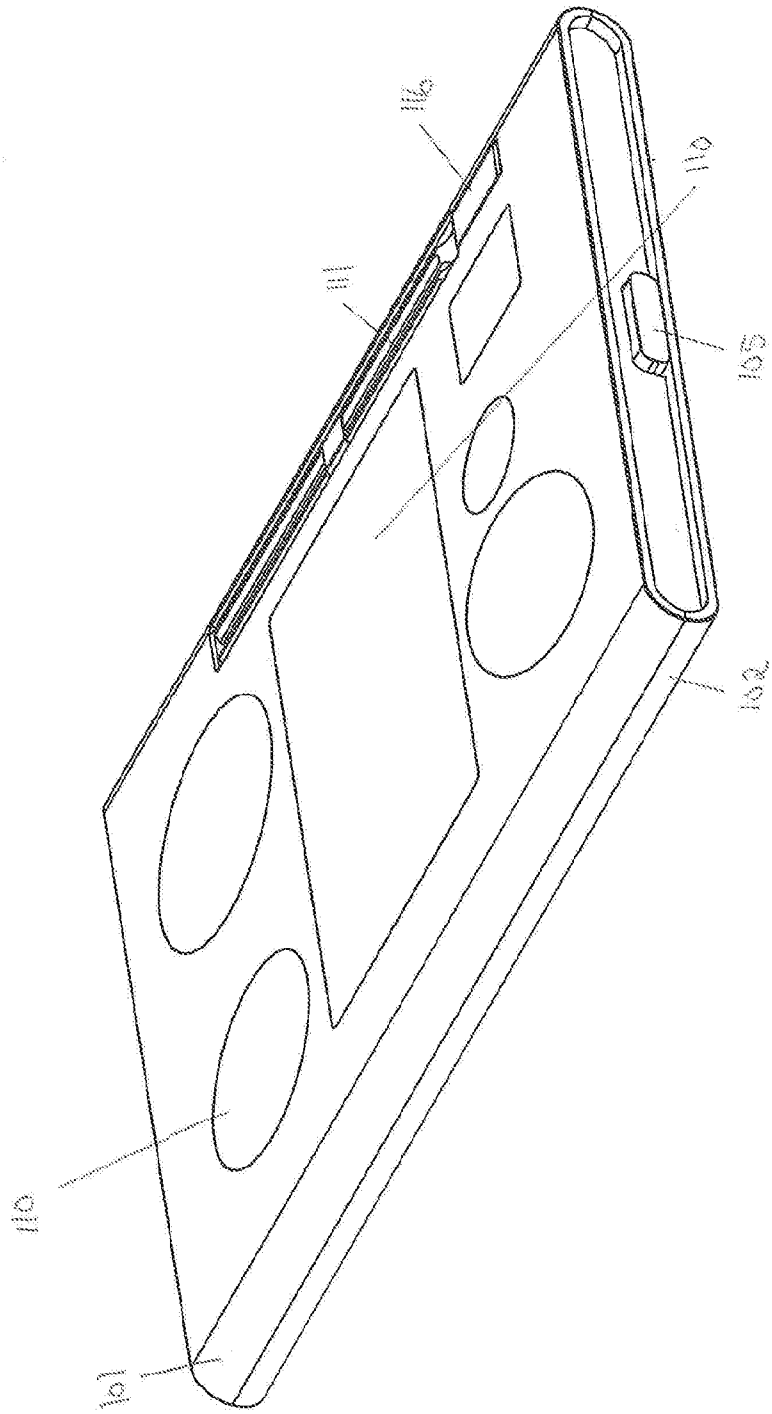

Fig. 24

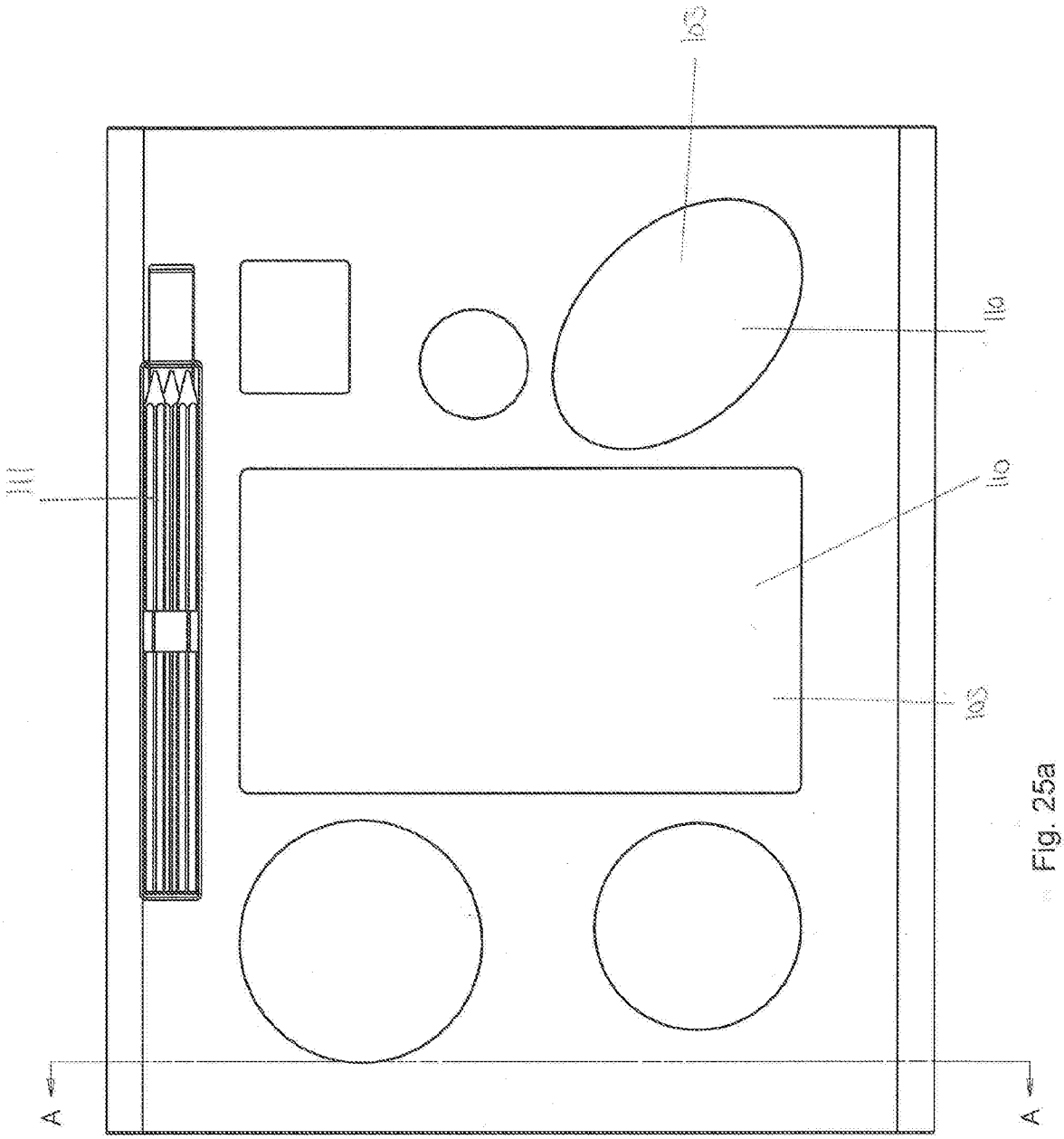

Fig. 25a

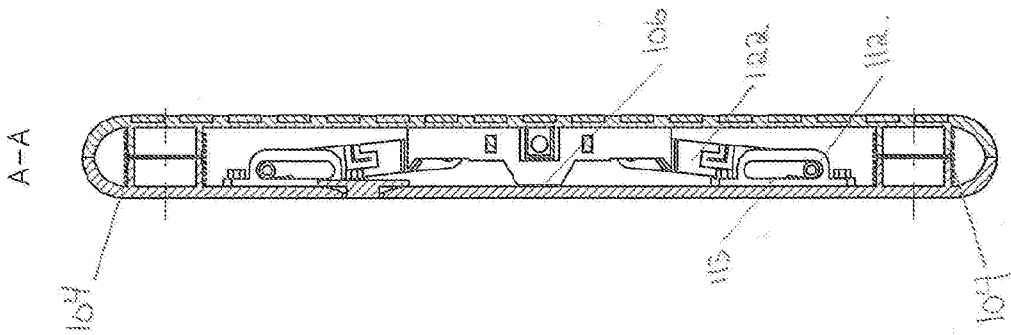

Fig. 25b

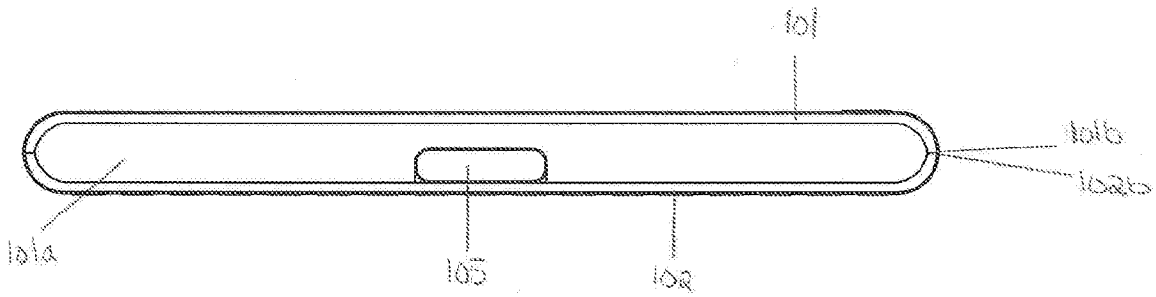

Fig. 26

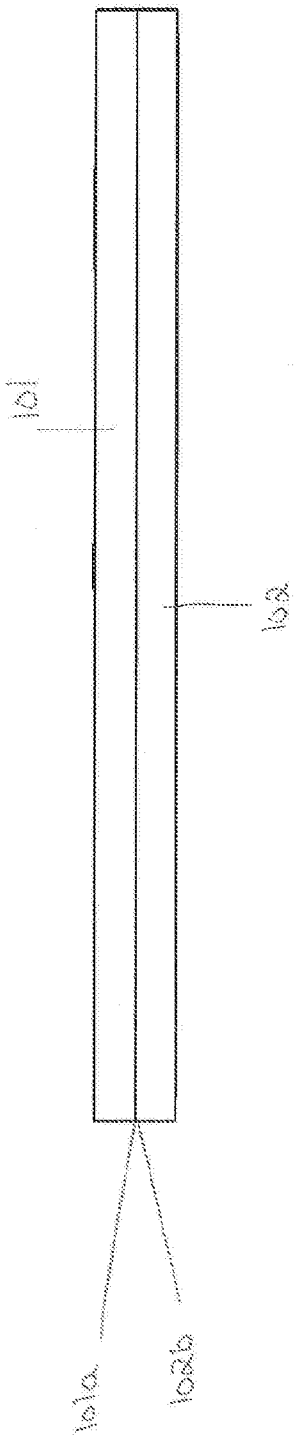

Fig. 27

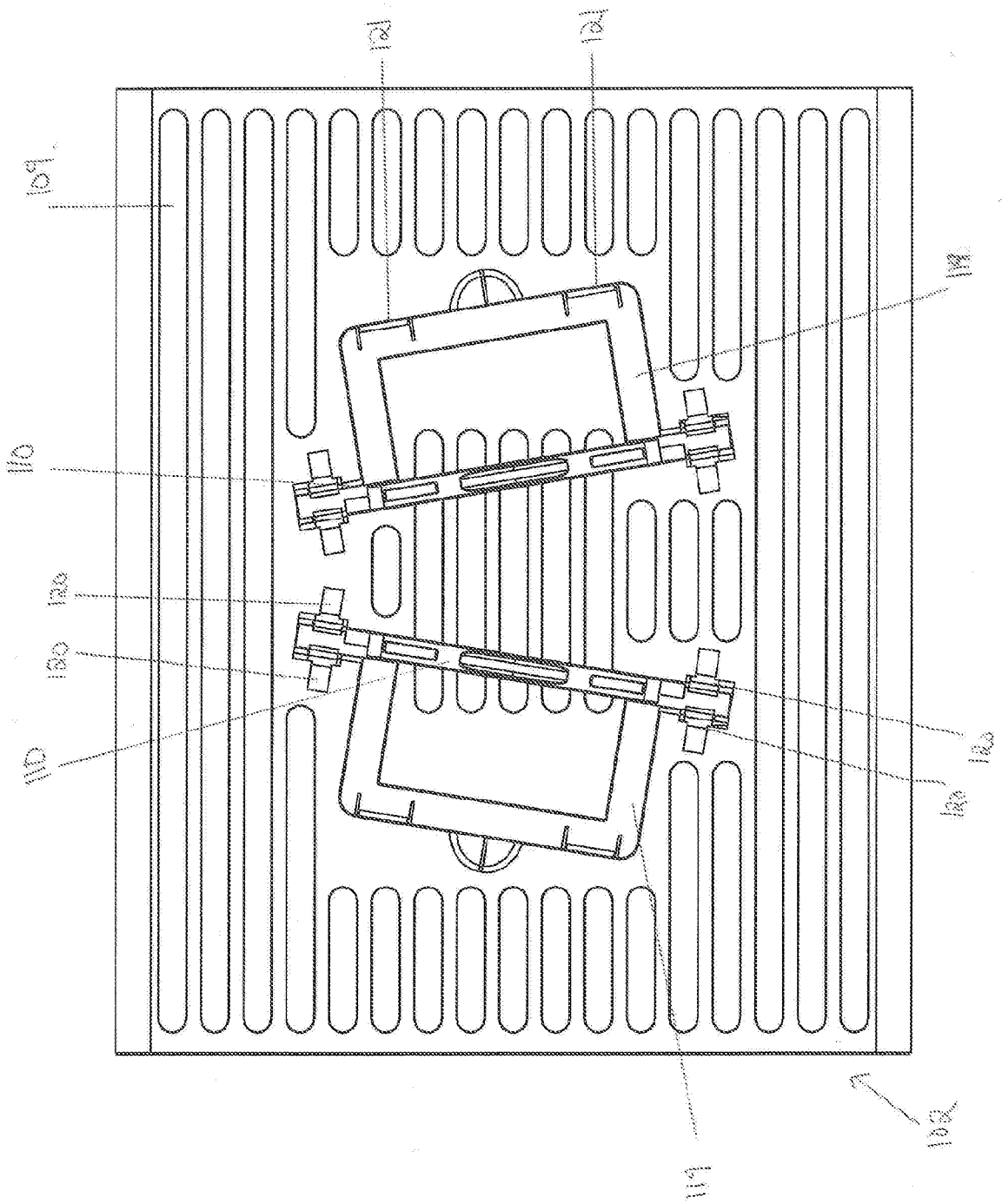

Fig. 28

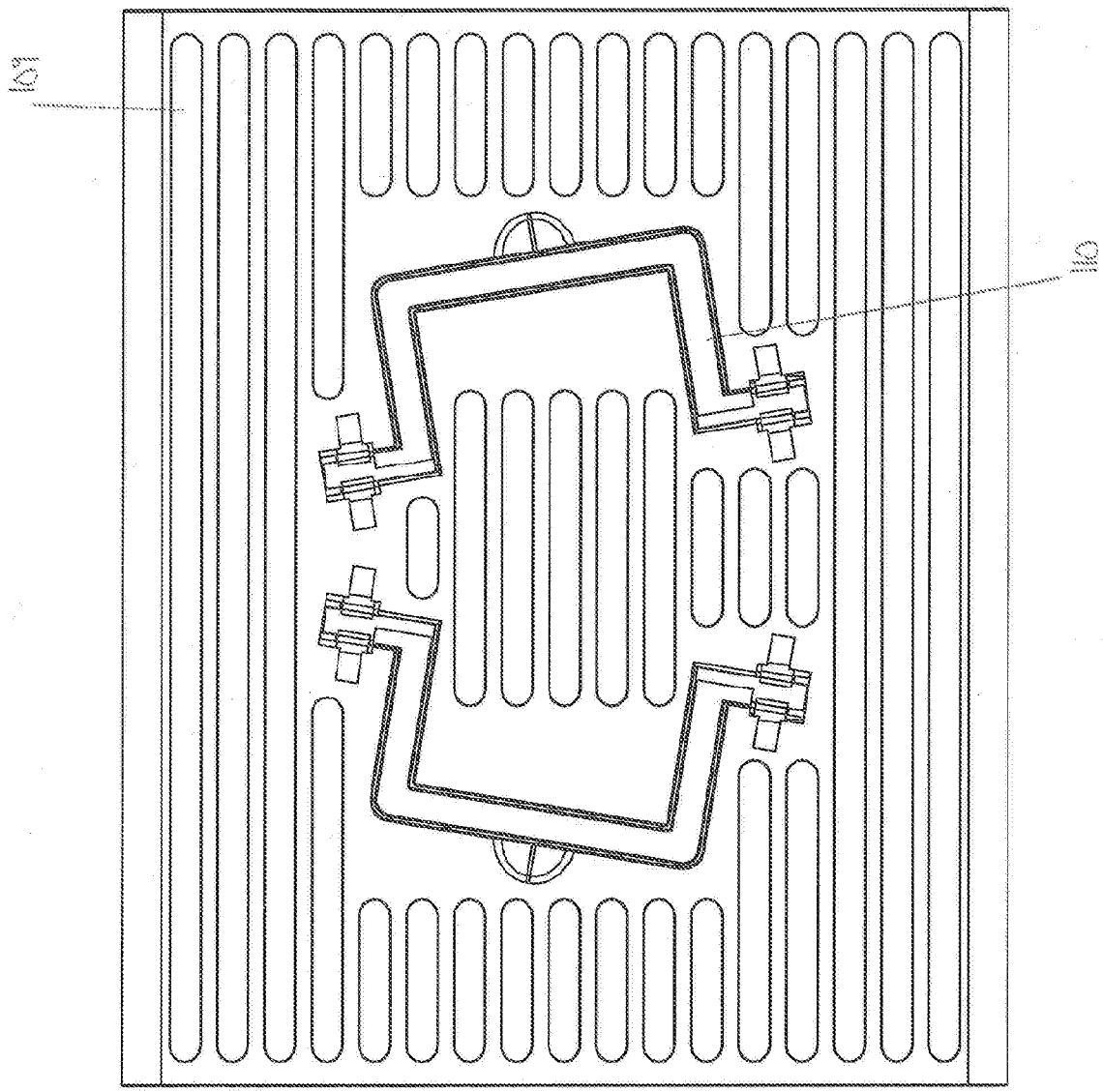

Fig. 29

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NO2015/050032

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

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)

IPC: A47B, A47G

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

SE, DK, FI, NO classes as above

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

EPO-Internal, PAJ, WPI data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 8176855 B1 (CANNON JONATHAN W ET AL), 15 May 2012 (2012-05-15); abstract; column 4, line 42 - column 5, line 11; column 6, line 26 - line 58; figures 1-2,12-19 --	1-18
A	US 6401927 B1 (SORENSEN BRADFORD T ET AL), 11 June 2002 (2002-06-11); abstract; figures 1,5-7 --	1-18
A	US 20090014341 A1 (RAYMOND EDWARD PATRICK ET AL), 15 January 2009 (2009-01-15); abstract; paragraph [0034]; figures 1,3,14 --	1-18

☒ 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 application or patent but published on or after the international filing date

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07-05-2015	07-05-2015

Name and mailing address of the ISA/SE	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/NO2015/050032

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3001684 A (WENZEL FREDERICK A), 26 September 1961 (1961-09-26); column 1, line 8 - line 11; column 1, line 56 - line 58; figures 1-2	1-18
	--	
A	GB 2053853 A (STANLEY T O), 11 February 1981 (1981-02-11); abstract; figures 1-2	1-18
	--	

International application No.
PCT/NO2015/050032

Continuation of: second sheet

International Patent Classification (IPC)

A47G 23/06 (2006.01)
A47B 23/00 (2006.01)

US	8176855	B1	15/05/2012	NONE
US	6401927	B1	11/06/2002	NONE
US	20090014341	A1	15/01/2009	NONE
US	3001684	A	26/09/1961	NONE
GB	2053853	A	11/02/1981	NONE