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(54) Title: ESL LOCKING MECHANISM

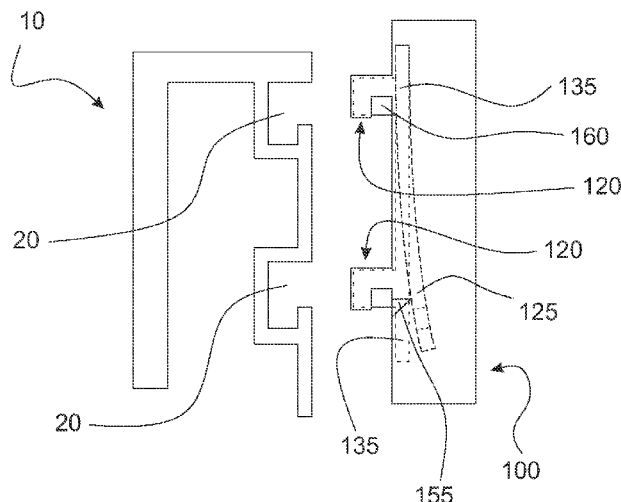


Figure 1

(57) Abstract: According to the invention an ESL and ESL holder combination comprises a locking mechanism for releasably securing the ESL to said ESL holder, and an ESL provided with at least one gripping means for cooperative engagement with said ESL holder. The ESL holder is attachable to an edge of a shelf, said ESL holder being provided with one or more receiving means such as for example slots for receiving said gripping means and said locking element in cooperative engagement. A spring loaded element is arranged inside the ESL such that the spring loaded element, in a latched position, secures said ESL to the ESL holder when the gripping means is brought into a hooked position in said receiving means. And when displaced from its latched position allowing the gripping means to leave its hooked position, thus enabling removal of the ESL from the ESL holder.



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ESL locking mechanism

Technical field of the invention

The present invention relates to an electronic shelf label (ESL) and shelf edge rail combination. In particular the invention relates to such a combination comprising a locking mechanism, for locking the ESL to the shelf rail edge.

Background of the invention

Electronic labelling systems are used all over the world, in particular in large facilities, for displaying information like price etc. for services and items available for customers.

Some known electronic labelling systems comprise an Electronic Shelf Label (ESL) and a shelf edge rail. The shelf edge rail is often permanently mounted onto the shelf, and then the ESL is attached to the shelf edge rail. A problem with most systems available today, is that the ESL can be easily removed from the shelf edge rail by anyone, whereas it is desired that the ESL is easy to remove from the shelf edge rail only by a person authorized to do so, to avoid the loss of ESLs by theft or vandalism.

Summary of the invention

The object of the present invention is to overcome at least some of the drawbacks of the prior art. This object is achieved by a combination as defined in claim 1.

According to the invention an ESL and ESL holder combination comprises a locking mechanism for releasably securing the ESL to said ESL holder and an ESL provided with at least one gripping means for cooperative engagement with said ESL holder.

The invention is intended to overcome problems related to loss of ESLs due to theft or vandalism.

It is another object of the invention to provide an ESL which is securely attached to the shelf edge rail, while being very easy to remove provided that a specific and correct tool is used.

It is another object of the invention, to enable locking of the ESL to a specific position on the shelf edge rail, and avoid that the ESL may be slid sideways to a new position by someone not authorized to do so.

It is yet another object of the invention to provide a shelf edge rail, which does not collect dust and other unwanted particles in the receiving section on the parts of the shelf rail edge that are not in use, i.e. occupied by ESL units.

Embodiments of the invention are defined in the dependent claims. Other objects, advantages and novel features of the invention will become apparent from the following detailed description of examples of embodiments of the invention when considered in conjunction with the accompanying drawings and claims.

Brief description of the drawings

Preferred embodiments of the invention will now be described with reference to the accompanying drawings, wherein

FIG. 1 a) illustrates an ESL and a shelf edge rail separated from each other and b) the ESL when a gripping element is inserted into a mating recess on the shelf edge rail, and brought to an inner position, and c) the ESL when the gripping means is in a hooked position and a spring loaded element is in a latched position, and d) a blow-up of the gripping means in a hooked position, the locking element in a locked position, and the spring loaded element in a latched position, and e) an ESL with a large locking element and substantially flat backside surface, and f) an ESL holder with a flat backside surface.

FIG. 2 a) and b) illustrates the ESL in an un-locked position.

FIG. 3 a) and b) illustrates the ESL in a locked position, and 3 c) illustrates one example of the movable locking plate.

FIG. 4 a-b) illustrates an ESL comprising a magnetic element in a locked position, and c) illustrates the ESL as it enters its unlocked position in the presence of a magnetic field.

FIG. 5 illustrates embodiments of the invention wherein the spring loaded element has an induced tension in an a-b) unlocked state and c-d) locked state.

FIG. 6 a-b) illustrates an embodiment with gripping means adapted to attach to an "easy to keep clean"-rail, and the positioning element in two different positions.

FIG. 7 a-b) illustrates embodiments of the ESL with a positioning element at different positions.

FIG. 8 a) illustrates an ESL locked to an ESL holder, b) illustrates a side view of one example of a free-standing ESL holder, and c) illustrates a front view of the free-standing ESL holder and d) illustrates a longitudinally extending shelf edge rail.

FIG. 9 a) illustrates an ESL adapted to a b) plate-like ESL holder.

FIG. 10 a) illustrates an ESL adapted to a b) plate-like ESL holder, and c) shows a side view of a simple ESL and d) shows a side view of a simple plate like ESL holder.

Detailed description of embodiments

For the purpose of the present invention, the term electronic shelf label (ESL) 100 means an electronic label with a display, used to display price, information or promotional messages, and also dynamically update or change the message. The label is typically used on shelf edges, peg hooks, bins, hangers and other places in retail stores.

In one embodiment of the present invention, illustrated in FIG. 1a, an ESL 100 and ESL holder 10 combination comprises a locking mechanism for releasably securing the ESL 100 to said ESL holder 10. The ESL holder 10 is in the shown embodiment a rail which is attachable to a shelf edge. The rail comprises at least one, in the shown embodiment two recesses having a generally "L"-shaped cross-section. The mechanism further comprises a number of components, namely at least one gripping means 120 on the ESL having a generally hook-shaped cross-section. The

gripping means extends outwards from the back of the ESL. The at least one gripping means 120 is adapted for cooperative engagement with said ESL holder 10.

The mechanism also comprises a movable locking plate 135, which is arranged inside the ESL 100 so as to be slidable along an inner wall of the ESL housing. The movable locking plate 135 is suitably of metal but any material that can provide some degree of resiliency is possible. The movable locking plate has at least one locking element 160, which in the shown embodiment is an element protruding perpendicularly from the movable locking plate 135. The locking element(s) 160 extend out from the interior of the ESL 100 through suitable slits in the housing, at a position adjacent the gripping means. The slits have a size that is larger than the extension of the locking elements, for reasons to become clear below. The movable locking plate 135 is also provided with a spring loaded element 125. In the shown embodiment this spring loaded element 125 is provided by cutting slits in the movable locking plate 135 so as to form a "tongue" that can be bent whereby a spring action is provided. The tongue has a slot provided at its free end. This slot can receive a latch element 155 which in the shown embodiment consists of a protruding wedge-shaped element. In the position shown in Fig. 1b the locking element 160 is resting on an edge on the receiving means 20 with the gripping means 120 in an inserted position, thus the spring loaded element 125 is in its unlatched position in the ESL 100 in which the latch 155 and the slot do not mate.

The locking element 160 is attached to a movable locking plate 135 on the ESL 100, for cooperative engagement with said ESL holder 10, and as mentioned above, the ESL holder 10 is provided with one or more recesses which functions as receiving means 20 for receiving said gripping means 120 and said locking element 160 in cooperative engagement. The locking element 160 may be arranged adjacent to the gripping means 120 and positioned on the ESL 100 such that said locking element 160 is insertable into the receiving means 20 (recesses) on said ESL holder 10 (rail) together with the gripping means 120. In the initial position, i.e. when the gripping means 120 and locking element has been inserted, the tongue is still in a non-engage state with respect to the latch member, as illustrated in FIG. 1b. Thereafter, the gripping means on the ESL 100 is displaceable downwards so as to bring the gripping means 120 into a hooked position in the recess in the ESL

holder 10, see Fig. 1c. In this process the movable locking plate 135 will slide inside the ESL 100 since the locking element 160 rests on the edge of the recess in the rail. The locking element 160 thus remains in a resting position with respect to the rail, which causes the movable locking plate 135 to move inside the ESL 100, relative to the ESL housing, when the ESL 100 is pushed to a locked position on the ESL holder 10 and the gripping means 120 is brought into a hooked position in said receiving means 20, as shown in FIG. 1c-d. This relative movement of the plate with respect to the ESL 100 causes the slot in the tongue to become positioned over the latch and thereby snaps onto it. Thereby the spring loaded element 125 (the tongue) on the movable locking plate 135 secures the locking element 160 in its locked position by grasping the latch 155 and entering the latched position shown in detail in FIG. 1d. Thus, the locking element 160 prevents removal of the ESL 100 from the ESL holder 10 until the spring loaded element 125 on the movable locking plate 135 is forced against the spring force to leave its latched position, thereby allowing the locking element 160 to enter its unlocked position as the gripping means 120 leave its hooked position, enabling removal of the ESL 100 from the ESL holder 10. In addition, FIG. 1e illustrates an embodiment where the gripping means 121, 122 on the ESL 100 is arranged as two recesses, a first gripping means 121 and a second gripping means 122, the receiving means is arranged as two protruding elements, a first receiving means 21 and a second receiving means 22, and the locking element 161 extends between the first 121 and the second 122 gripping means. When the gripping means 121, 122 on the ESL 100 mates with the receiving means 21, 22 on the ESL holder 10, and the gripping means 121, 122 is brought to a hooked position, the ESL 100 will be moved downwards such that the locking element 161 that rests on the edge of the first receiving means 22 will secure the first gripping means 121 in a locked position as the spring loaded element 125 snaps into position and enters the latched position. In this way, the locking mechanism can be placed in an unlocked position and a locked position, respectively. The ESL 100 in this embodiment, with an essentially flat surface, is also suitable for applications where the ESL 100 needs to be attached to an essentially flat surface using fastening means as for example glue, to glue the ESL 100 to for example a wall or a cardboard box. FIG. 1f illustrates an ESL holder 10, 400, 410 having a flat backside surface. Thus, this ESL holder 10, 400, 410 can be directly attached to a wall, a container, cardboard box or any other surface onto which it can be attached using fastening means like for example glue.

The ESL holder 10 can be a shelf edge rail 10, a free-standing holder 400, a plate holder 410, or any other holder adapted to receive an ESL 100 according to the invention. An ESL holder 10, 400, 410 is defined as any object on which receiving means 20 has been arranged to receive the gripping means 120 of an ESL 100.

The locking mechanism can be mounted onto the ESL 100 or integrated in the ESL 100. In addition, parts of the locking mechanism may be integrated in the ESL 100, and other parts may be assembled onto/in the locking mechanism.

Referring to FIG. 2, the ESL 100 is illustrated with the locking element in an unlocked position and the spring loaded element 125 in an unlatched position from the interior and the backside of the ESL 100 respectively. FIG. 3a and 3b illustrates the locking element in a locked position and the spring loaded element 125 in a latched position from the interior and the backside of the ESL 100 respectively. When the movable locking plate 135 is moved from its position in FIG. 2 to its position in FIG. 3, the spring loaded element 125 moves from its unlatched position and snaps into its latched position when the edge of the recess or hole in the spring loaded element 125 slides over the edge of the latch 155. FIG. 2b and FIG. 3b also illustrates how the locking elements 160, attached to the movable locking plate 135, are moved from an unlocked position to be secured at a locked position as the spring loaded element 125 enters the latched position. In addition, FIG. 3c illustrates the movable locking plate 135 with its, in this example, 4 locking elements 160. When the movable locking plate 135 is mounted in position in the ESL 100, the locking elements 160 shoot out through slots 128 in the ESL 100 as can be seen in the blown-up FIG. 1d, adjacent to the gripping means 120. However, locking elements 160 can be positioned elsewhere, that is, separated from the gripping means 120, without leaving the scope of the invention.

When the gripping means 120 has reached an end position in the receiving means 20, and is brought into a hooked position in said receiving means 20 by sliding it down into the recess (or up as in the embodiment of Fig. 6a-b), the spring loaded element 125 grasps the latch by spring action as it enters a latched position, and secures the locking element in a locked position. Thereby, the spring loaded element 125 prevents removal of the ESL 100 from the shelf rail edge 10 unless the spring loaded element 125 is forced from the latched position and thereby allows for the locking element 160 to leave its locked position as the gripping means 120

leave its hooked position, enabling removal of the ESL 100 from the shelf rail edge 10.

The gripping means 120 provided on the ESL 100 for cooperative engagement with the receiving means 20 on the shelf edge rail 10 is preferably generally hook-shaped, for grasping the receiving means 20 on the shelf edge rail 10. The gripping means 120 may have an "L"-shape, a more rounded hook-shape, or any other hook-like shape suitable for securely grasping a receiving means 20. The locking member 160 arranged on the ESL 100 will together with the gripping means 120 interact with the receiving means 20 on the shelf edge rail 10 while the gripping means 120 due to its hook-shaped cross-section can be adapted to hook on to the receiving means 20 on the shelf edge rail 10.

The gripping means 120 on the ESL 100 may be extended along the entire backside of the ESL 100, forming a ledge or rim like structure, or it may cover only one section or a plurality of sections. The hook-shaped gripping means 120 may be arranged to hook onto the receiving means 20 such that the gripping means 120 mate with the receiving means 20.

In a preferred embodiment of the present invention, the ESL 100 in addition to the locking mechanism also comprises a positioning element 140 illustrated in FIG. 4a (also present in FIG. 4c, 6a-b, 7a-b, 8a, 9a, and 10a). The positioning element 140 can be arranged anywhere on an ESL 100 surface, such that during attachment to an ESL holder 10, 400, 410, it abuts the ESL holder 10, 400, 410 wherein a mating surface of said ESL holder 10, 400, 410 comprises a positioning element slot 40. The positioning element 140 secures the ESL 100 sideways with respect to the ESL holder 10, 400, 410, thereby forcing the ESL 100 into a fixed position onto said ESL holder 10, 400, 410. The positioning element 140 can be a pin placed somewhere on the mating surface of the ESL 100. The positioning element slot 40 is placed somewhere on the mating surface of the ESL holder 10, 400, 410. The positioning element 140 and the positioning element slot 40 are arranged at their respective mating surface such that they mate when the ESL 100 is assembled onto the ESL holder 10, 400, 410, and different positions of the positioning element 140 and the positioning element slot are illustrated in FIGs 6-10. It is also possible to place the positioning element 140 on the ESL holder 10, 400, 410, and the positioning element slot 40 somewhere in the mating surface of the ESL 100, as

long as the positioning element 140 and the positioning element slot are adapted to mate when mounting the ESL 100 to the ESL holder 10, 400, 410. The locking element 160 and the positioning element 140 may also be the same element.

Magnetic means may also be provided on the spring loaded element 125, illustrated in FIG. 4, in order to enable attracting the spring loaded element 125. The spring loaded element 125 can, with a proper choice of material and dimension, exhibit enough magnetic force for it to be attracted by an external magnet, but the effect may be amplified. Namely if, according to the invention, the locking mechanism comprises a magnetic element 195 which is attached to the spring loaded element 125. Said magnetic element 195 may be a ferromagnetic element. The magnetic element 195 is mounted onto the spring loaded element 125 such that it can be affected by an external magnet 300. By letting the magnetic field from the external magnet 300 act on the magnetic element 195 in the locking mechanism, the spring loaded element 125 is moved from its latched position to its unlatched position, thereby enabling releasing the ESL 100 from the shelf edge rail 10, illustrated in FIG. 4c where the magnet 300 attracts the magnetic element 195 on the spring loaded member 125. In the embodiments illustrated in FIG. 1 to FIG. 4, the spring loaded element 125 is moved from a latched position to an unlatched position when the spring loaded element 125 is moved, for example in the presence of a magnetic field, in a direction from shelf edge rail-side and towards a front side of the ESL 100. It is also possible, as illustrated in FIG. 5, to induce tension in the spring loaded element 125, such that it is at rest in its latched position shown in FIG. 5c and 5d when extended from the movable locking plate, with the latch 155 mounted to or integrated in a latch mount element 152. Thus, to enable unlocking of the ESL 100 and move the spring loaded element 125 from the latched position to its unlatched position, the spring loaded element 125 will be, for example by the force of a magnetic field, moved in a direction towards the shelf edge rail-side of the ESL 100. It is also possible, illustrated in FIG. 5e, to let the spring loaded element 125 be provided with a latch 155, and let the ESL housing or a separate element 127 be provided with a hole or a recess, adapted to receive and secure the latch 155 in its latched state.

Normally, the external magnet 300 and the magnetic element 195 has a north and a south pole, and different poles attract each other whereas like poles repel each other. Thus, as the external magnet is placed adjacent to the ESL 100 as shown in

FIG. 4c, it attracts the magnetic element 195 attached to the spring loaded element 125 and retracts it from the recess by magnetic forces. In this embodiment the spring loaded element 125 is positioned in an unlatched position when attracted by a magnetic field from an external magnet. It is also possible to use the repelling force of the magnet as mechanism to unlatch the spring loaded element 125, by placing a magnetic element comprising a north and a south pole onto the locking member, and orient it such that the repelling force from the external magnet 300 repels the spring loaded element 125 from its latched position to an unlatched position, allowing for the locking element 160 to leave its locked position and enter its unlocked position, thus allowing the gripping means 120 to exit its hooked position and subsequently remove the ESL 100 from the ESL holder 10, 400, 410.

It is also within the scope of the invention to provide a mechanical solution to move the spring loaded element 125 from a latched position to an unlatched position. That can be done in many ways. One way is to arrange a hole in the ESL 100 adapted to receive a key or a tool, and by rotation, or through pressure, from outside ESL 100, move the spring loaded element 125 from its latched position to its unlatched position.

In one embodiment of the present invention, the shelf edge rail 10 comprises at least one receiving element 20 adapted to receive the protruding element of the locking mechanism and/or the ESL 100. In the following discussion, ESL 100 may be just the ESL 100 or the ESL 100 including the locking mechanism. The receiving means 20 may be a recess adapted to receive the protruding element of the ESL 100. The recess may, in a cross-sectional view, be "L"-shaped, have a rounded hook-shape, or any other hook-like shape suitable for securely holding the gripping means 120 of the ESL 100. The receiving means 20 on the shelf edge rail 10 may also be a protruding hook-like element, adapted to receive the protruding element of the ESL 100. The receiving means 20 may also be a combination of at least one recess and at least one protruding element.

In another embodiment of the present invention, illustrated in FIG. 6a-b, the gripping means 120 of the ESL 100 are hook-like with the hook pointing upwards, and the receiving means 20 on the shelf edge rail 10, adapted to receive the gripping means 120, are shaped accordingly to be able to hold the ESL 100. In this embodiment, dust and other dust-like particles do not get trapped inside the

gripping means 120. In addition, the gripping means 120 is easy to clean, and dust may even fall out of the gripping means 120 by gravitational forces. It is also illustrated in FIG. 6a-b how the positioning element may be positioned at different positions on the ESL 100. Furthermore, it is essential that the position of the positioning element 140, further exemplified in FIG. 7a-b, is adapted to mate with the positioning element slot 40.

In one embodiment of the present invention, the at least one recess is an elongated recess, extending in the longitudinal direction of the shelf edge rail 10, having a generally "L"-shaped cross-section. The leg of the "L" extends essentially perpendicularly to the surface of the shelf edge rail 10, and the foot of the "L" extends essentially perpendicularly to the leg inside the shelf edge rail 10. The length and width of the leg and the foot of the "L" in the ESL 100 and the shelf rail edge 10 can be varied as long as the gripping means 120 of the ESL 100 is adapted to match the receiving means 20 of the shelf edge rail 10.

In one embodiment of the present invention, illustrated in FIG. 8a and 8d, the shelf edge rail 10 comprises two recesses, adapted to receive the ESL 100. The recesses have an "L"-shaped cross-section, and are adapted to receive the hook-like gripping means 120 on the ESL 100. The locking element 160 is arranged adjacent to the gripping means 120 on the ESL 100, and is, as the ESL 100 is moved downwards so as to bring the gripping means into a hooked position in the recess in the ESL holder 10, moved from its unlocked position to its locked position in the each recess of the shelf edge rail 10 upon locking. In this embodiment, there is a locking member adjacent to every gripping means of the ESL 100, but it is also possible to reduce the number of locking members down to at least one.

In another embodiment of the present invention, the shelf edge rail 10 is subdivided in sections, thus the receiving means 20 is not continuous along the said shelf edge rail 10. Each section of said shelf edge rail 10 may be adapted to comprise one or a plurality of ESLs.

In another embodiment of the present invention, the ESL holder 400 is a free-standing holder 400 illustrated in FIG. 8b and 8c. The free-standing holder 400 comprises an ESL attachment surface with receiving means 20, the attachment surface being mounted to at least one foot 25, which supports the free-standing holder 400, and makes it self-supported on a substantially flat surface. The free-

standing holder 400 may also be placed on sloped surfaces if for example glued, such that it is secured in a fixed position. The foot 25 may also function as a wall-mount, if angled differently with respect to the part of the free-standing holder 400 where the ESL 100 is attached. Said free-standing holder can be made of a plastic material, a composite or a metal, although not restricted to those materials.

Referring to FIG. 8d, there is no specified length on the shelf rail edge 10. Said shelf rail edge 10 can be longitudinally extending and adapted to fit onto a shelf edge of any length. The ends of the shelf rail edge 10 may be open, or closed. The longitudinally extending shelf rail edge may also comprise positioning element slots 40 adapted to receive positioning elements 140 of the ESL 100. The positioning element 140 secures the ESL 100 to a specific position on the shelf edge rail 10, and prevents said ESL 100 from being slid sideways.

In yet another embodiment of the present invention, shown in FIG. 9a-b and 10a-d, the ESL holder 410 comprises a plate-like holder 410 comprising at least one recess, adapted to receive the gripping means 120 and the locking element 160 of the ESL 100. The plate-like holder 410 can be made of plastic, composite or a metallic material. Said plate-like holder 410 may comprise slots 40 for receiving a positioning element 140 of the ESL 100, securing said ESL 100 at a substantially fixed position. The plate-like holder 410 can be placed onto a shelf edge rail 10, or it may be attached directly to a shelf edge or the like. It is to be understood by a person skilled in the art, that the plate-like holder 410 is very flexible, and may be used in a wide range of labelling applications without leaving the scope of the invention. The receiving means 20 on the plate-like holder 410, will be adapted to mate with the gripping means 120 on the ESL 100. The receiving means 20 on the plate-like holder 410 can be a slot. The plate-like holder 410 can also be attached to an object, like for example merchandise, or attached to for example a wall using fastening means. The ESL 100 may actually be directly attached to virtually anything, as long as receiving means 20 are provided. Thus, the ESL 100 may be attached directly onto a box like for example a cardboard box, as long as the receiving means is formed onto the box.

In an alternative aspect the ESL 100 and ESL holder 10, 400, 410 combination comprising a locking mechanism for releasably securing the ESL 10 to said ESL holder 10, 400, 410, has a mounting member which comprises an essentially flat

ESL attachment surface. This could be a rail or a holder of any of the types disclosed above. The ESL 100 has locking elements for securing it against said essentially flat mounting surface of said mounting member. The mounting member has receiving slots provided in said essentially flat ESL attachment surface for receiving said locking elements. Furthermore, it is provided a spring loaded element 125 that can be locked to a latch in a latched position thereby securing the locking element in a locked position, and a second fixed member having a hook-like shape insertable in a respective slot and enabling positioning of said fixed member in a hooked position from which it cannot be retracted when the locking element 160 is secured in its locked position.

A person skilled in the art will realize without inventive work, that the inverted solution, that is, letting the locking mechanism and/or the gripping means be part of the ESL holder 10, 400, 410, and letting the ESL 100 comprise the receiving means 20 is an obvious modification, and thus to be considered to fall within the scope of the present invention.

While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not to be limited to the disclosed embodiments. On the contrary, it is intended to cover various modifications and equivalent arrangements within the scope of the appended claims.

CLAIMS

1. Electronic Shelf Label (ESL) (100) and ESL holder (10, 400, 410) combination comprising a locking mechanism for releasably securing the ESL (100) to said ESL holder (10, 400, 410), wherein said ESL (100) is provided with at least one gripping means (120) for cooperative engagement with said ESL holder (10, 400, 410);

characterized in that

the gripping means have a hook-like shape suitable for securely grasping a receiving means, said ESL holder (10, 400, 410) being provided with one or more receiving means (20) for receiving said gripping means (120) and said locking element (160) in cooperative engagement;

a locking element (160), integral with a movable locking plate (135) in the ESL (100), for cooperative engagement with said ESL holder (10, 400, 410);

wherein

a spring loaded element (125) is provided on the movable locking plate (135) which is arranged inside the ESL (100),

the locking element (160) and the gripping means (120) are positioned such that said locking element (160) and the gripping means (120) are insertable in the receiving means on said ESL holder (10, 400, 410),

whereby the at least one locking element (160) will rest on the edge of the receiving means (20) in the ESL holder (10, 400, 410) when inserted,

and whereby the gripping means is displaceable into a hooked position, and when displaced causing the locking plate to move inside the ESL (100),

wherewith the spring loaded element (125) on the movable locking plate (135) secures the locking element (160) in its locked position by grasping a latch (155) and entering a latched position, so as to prevent removal of the ESL (100) from the ESL holder (10, 400, 410) until the spring loaded element (125) on the

movable locking plate (135) is forced against the spring force to leave its latched position,

and when displaced from its latched position allowing the movable locking plate (135) to be moved back to its unlocked position which movement brings the locking element (160) to said unlocked position when the gripping means is forced to leave its hooked position, thus enabling removal of the ESL (100) from the ESL holder (10, 400, 410).

2. A locking mechanism included in a combination according to claim 1, for releasably securing an ESL (100) to an ESL holder (10, 400, 410), comprising;

at least one gripping means (20) provided on the ESL (100) for cooperative engagement with a receiving means (20) on the ESL holder (10, 400, 410);

characterized by

at least one locking element (135), integral with a movable locking plate (135) in the ESL (100), for cooperative engagement with said ESL holder (10, 400, 410);

the locking element (135) and said gripping means (20) are arranged for cooperative engagement with a receiving means (20) on the ESL holder (10, 400, 410),

said gripping means (20) has a hook-shaped cross-section and is adapted to hook into said receiving means (20) on the ESL holder (10, 400, 410); wherein

said locking element (160) is arranged, integral with the movable locking plate in the ESL (100), such that it is brought into a locked state in a recess arranged on the ESL holder (10, 400, 410) when the gripping means (120) is positioned in a hooked position in said receiving means (20), and such that a spring loaded element (125), provided on the movable locking plate (135), grasps a latch (155) on the ESL (100) and enters a latched position, and the latch (155) when it locks the spring loaded element (125) prevents the movable locking plate (135) and thus the locking element (160) to leave its locked position until the spring loaded element (125) is forced to leave its latched position, which movement

allows the movable locking plate (135) and thus the locking element (160) to leave its locked state.

3. The locking mechanism in accordance with claim 2, **wherein** the locking mechanism comprises a magnetic element (195) attached to the spring loaded element (125).

4. The locking mechanism in accordance with claim 3, **wherein** the spring loaded element (125) further comprises a resilient member having at least one movable section and being attached to the movable locking plate (135) and wherein the magnetic element (195) is placed on at least one movable section of said resilient member.

5. The locking mechanism in accordance with claim 4, **wherein** the resilient member is a resilient tongue, having at least one free movable section, and being attached to the movable locking plate (135), the magnetic element (195) being attached to the at least one movable free section.

6. The locking mechanism in accordance with any one of the claims 2 to 5, wherein the magnetic element will force the spring loaded element (125) from a latched position to an unlatched position when exposed to a magnetic field, thus enabling movement of the locking element (160) from a locked position to an unlocked position when the gripping means (120) on the ESL (100) is moved from its hooked position, making it possible to remove the ESL (100) from the ESL holder (10, 400, 410).

7. The locking mechanism in accordance with any one of the claims 2 to 6, **wherein** said locking mechanism is integrated with the ESL.

8. The locking mechanism according to any one of the claims 2 to 7, **wherein** a positioning element (140) is provided on the ESL (100) to secure the ESL (100) sideways in relation to the ESL holder (10, 400, 410).

9. The locking mechanism according to claim 8, **wherein** the positioning element (140) and the locking element (160) is the same element.

10. ESL holder included in a combination according to claim 1, comprising at least one receiving element adapted to receive at least one protruding element of at least one locking mechanism or ESL (100).

11. ESL holder (10, 400, 410) in accordance with claim 10, **wherein** the ESL holder (10, 400, 410) is a shelf edge rail (10), longitudinally extended, and adapted to receive at least one protruding element or ESL.

12. ESL holder (10, 400, 410) in accordance with claim 10 or 11, **wherein** said at least one receiving element is a protruding hook-like element, adapted to receive a protruding element of a locking mechanism or ESL (100).

13. ESL holder (10, 400, 410) in accordance with claim 10 or 11, **wherein** said at least one receiving element is a recess, adapted to receive a protruding element of a locking mechanism or ESL.

14. ESL holder 10 in accordance with claim 13, **wherein** the ESL holder is a shelf edge rail (10), and the at least one recess is an elongated recess extending in the longitudinal direction of the rail, and having a generally "L"-shaped cross section wherein the leg of the "L" extends essentially perpendicular to the surface

of the rail, and wherein the foot of the "L" extends essentially perpendicularly to the leg inside the rail.

15. ESL holder (10, 400, 410) in accordance with any one of the claims 10 to 14, **wherein** the ESL holder comprises a positioning element slot (40) adapted to receive a positioning element (140) to secure the ESL (100) sideways in relation to the ESL holder (10, 400, 410).

16. ESL (100) and ESL holder (10, 400, 410) combination comprising a locking mechanism for releasably securing the ESL (100) to said ESL holder (10, 400, 410), said combination comprising

a mounting member comprising an essentially flat ESL attachment surface;

an ESL having locking elements (120) for securing it against said essentially flat mounting surface of said mounting member;

said mounting member having receiving slots provided in said essentially flat ESL attachment surface for receiving said locking elements; wherein

said locking elements comprise a first member insertable in a respective slot, and a second fixed member having a hook-like shape insertable in a respective slot and enabling positioning of said fixed member in a hooked position from which it cannot be retracted.

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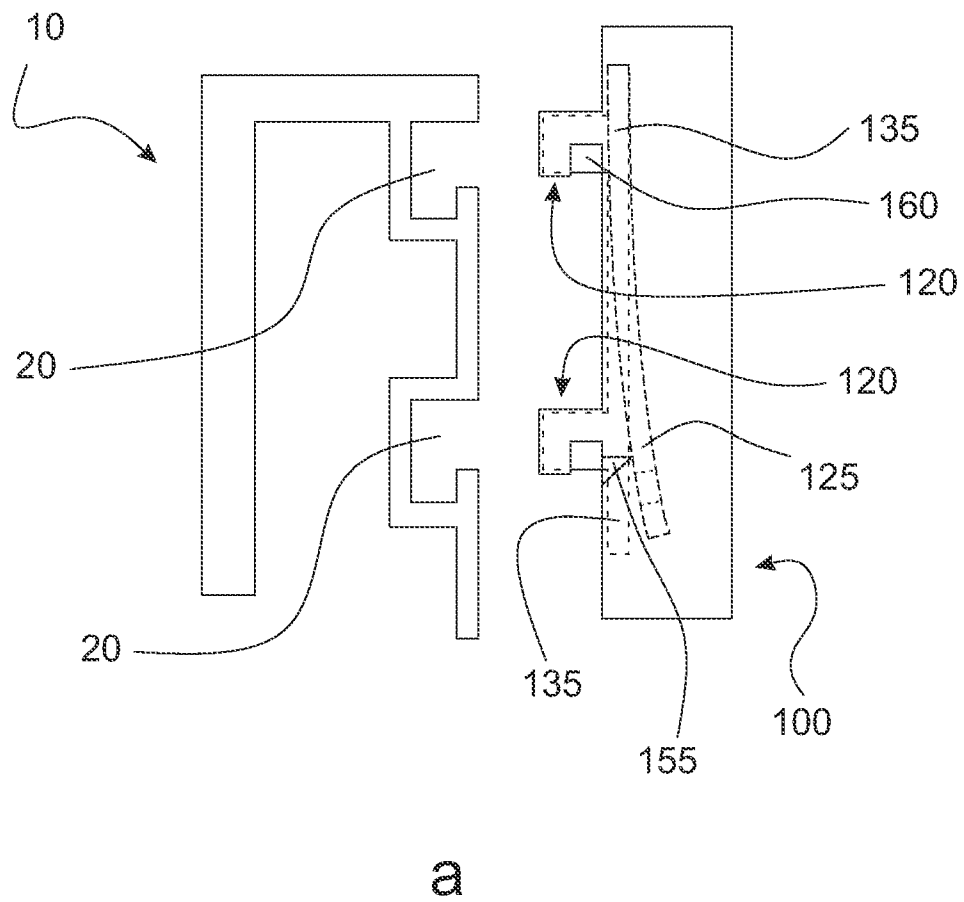


Figure 1

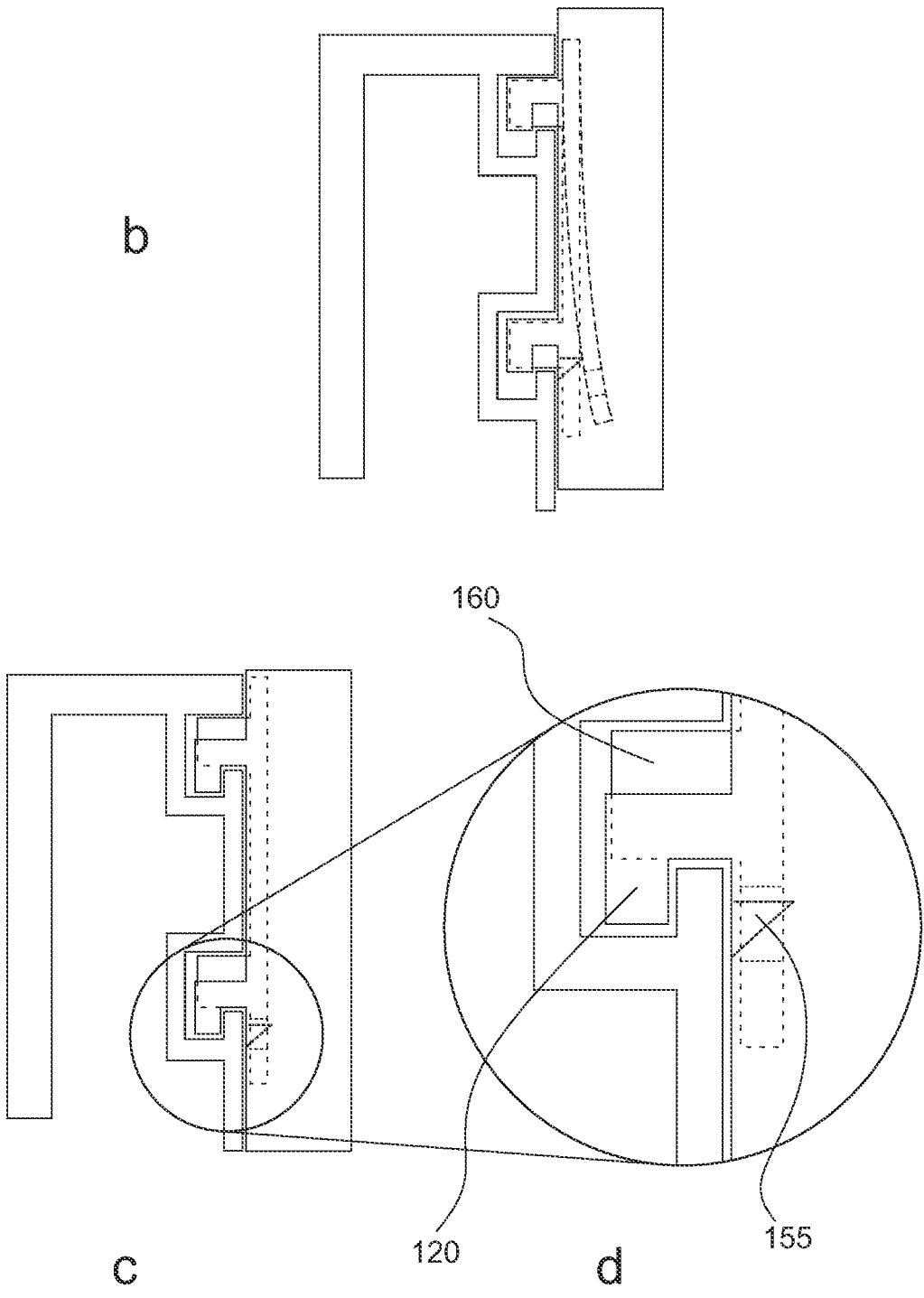
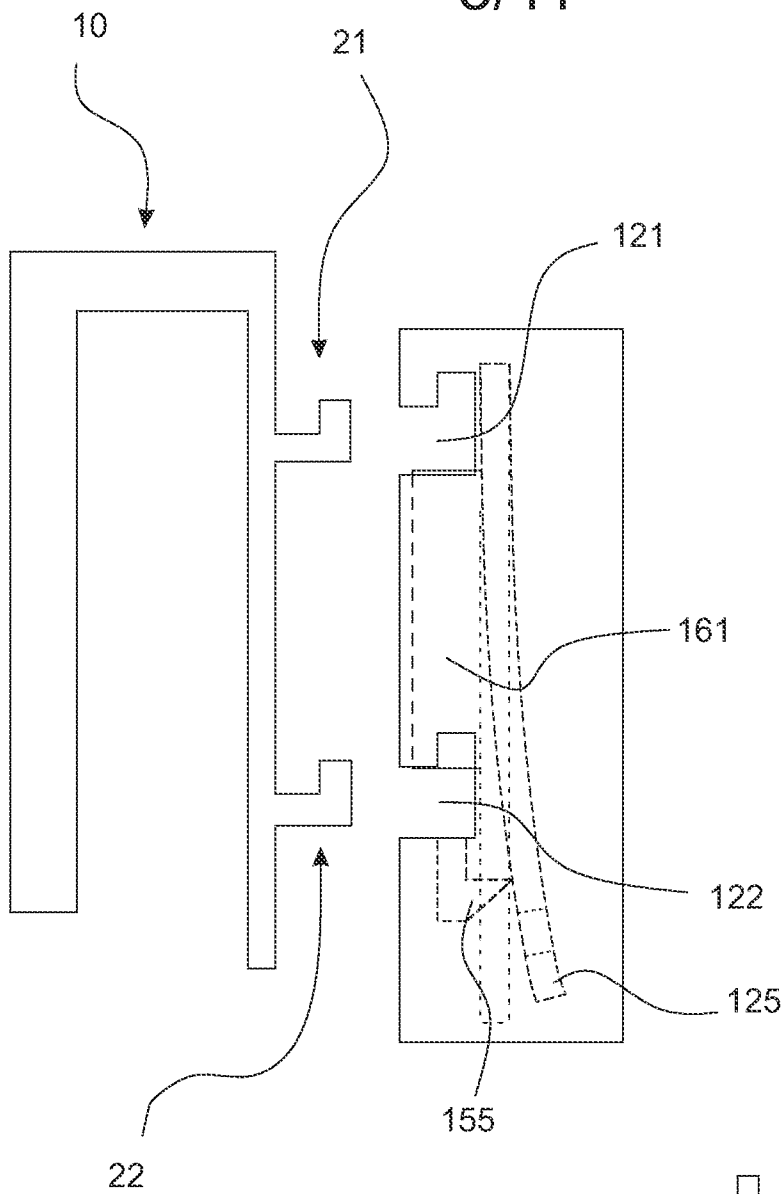


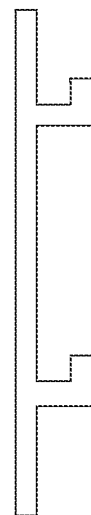
Figure 1

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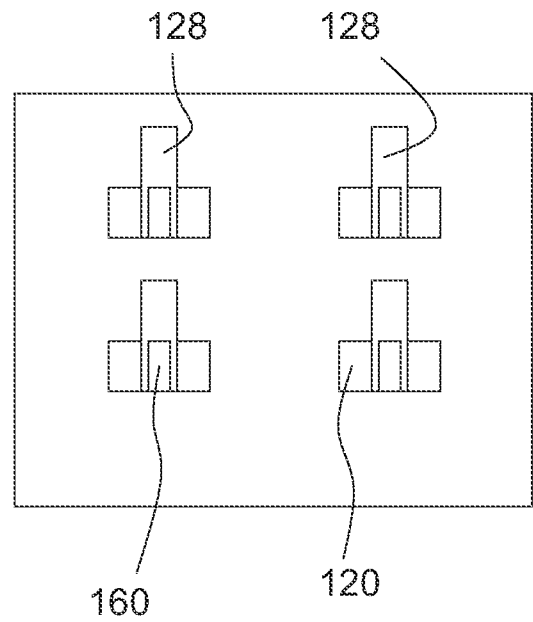
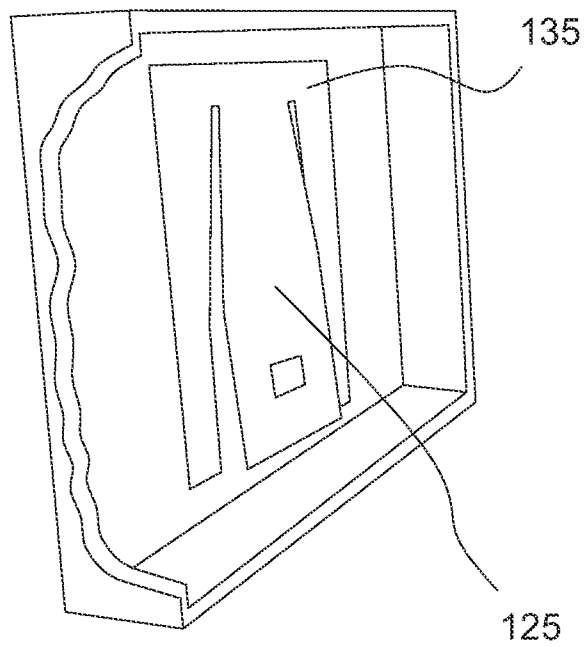


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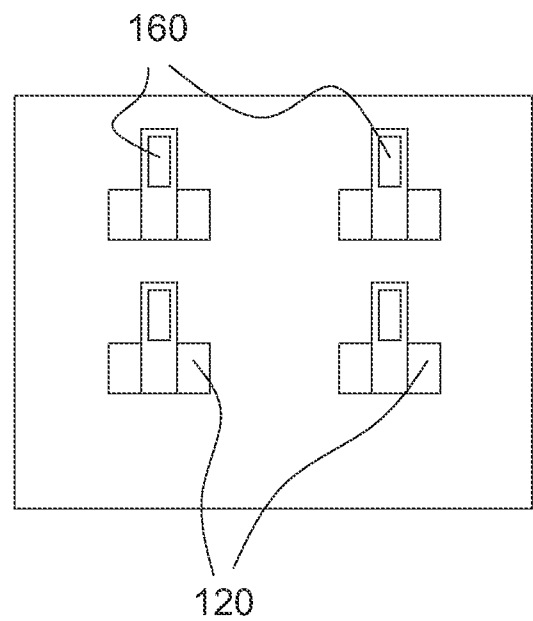
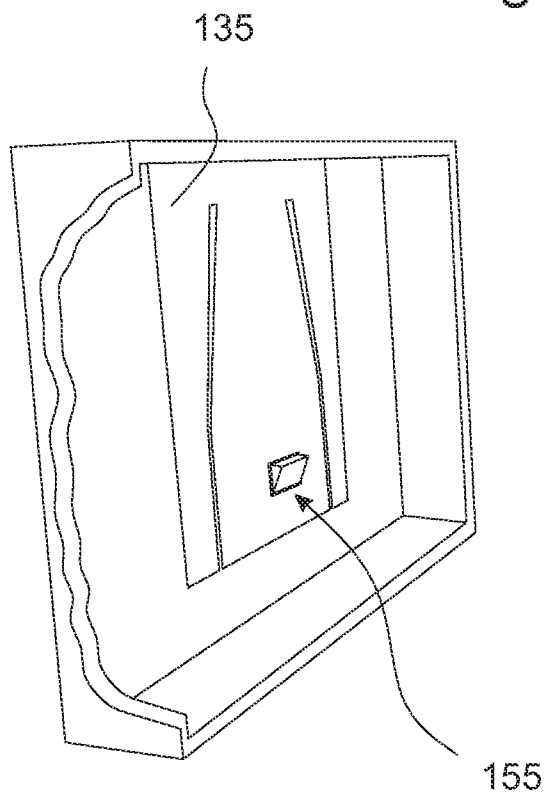
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a

b

Figure 2

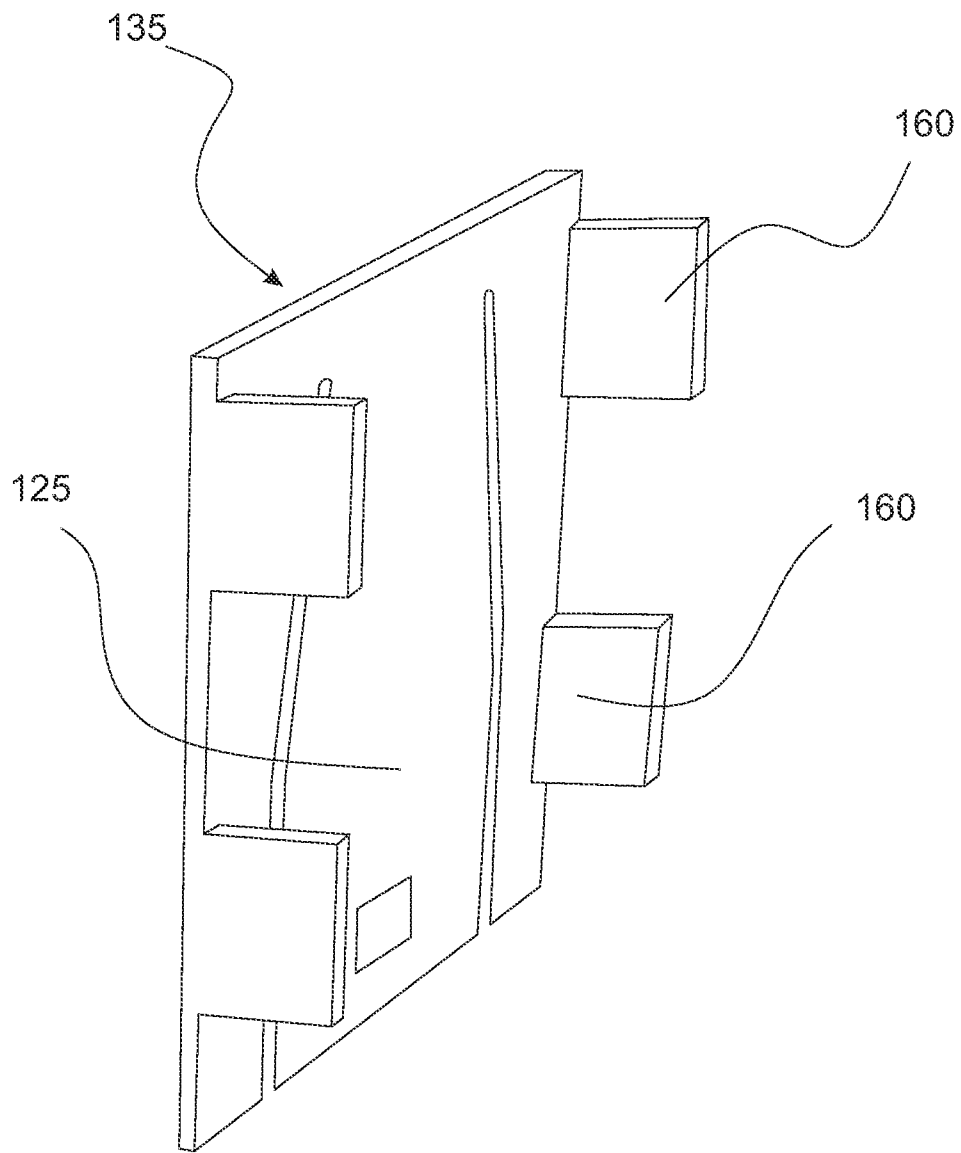


a

b

Figure 3

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c

Figure 3

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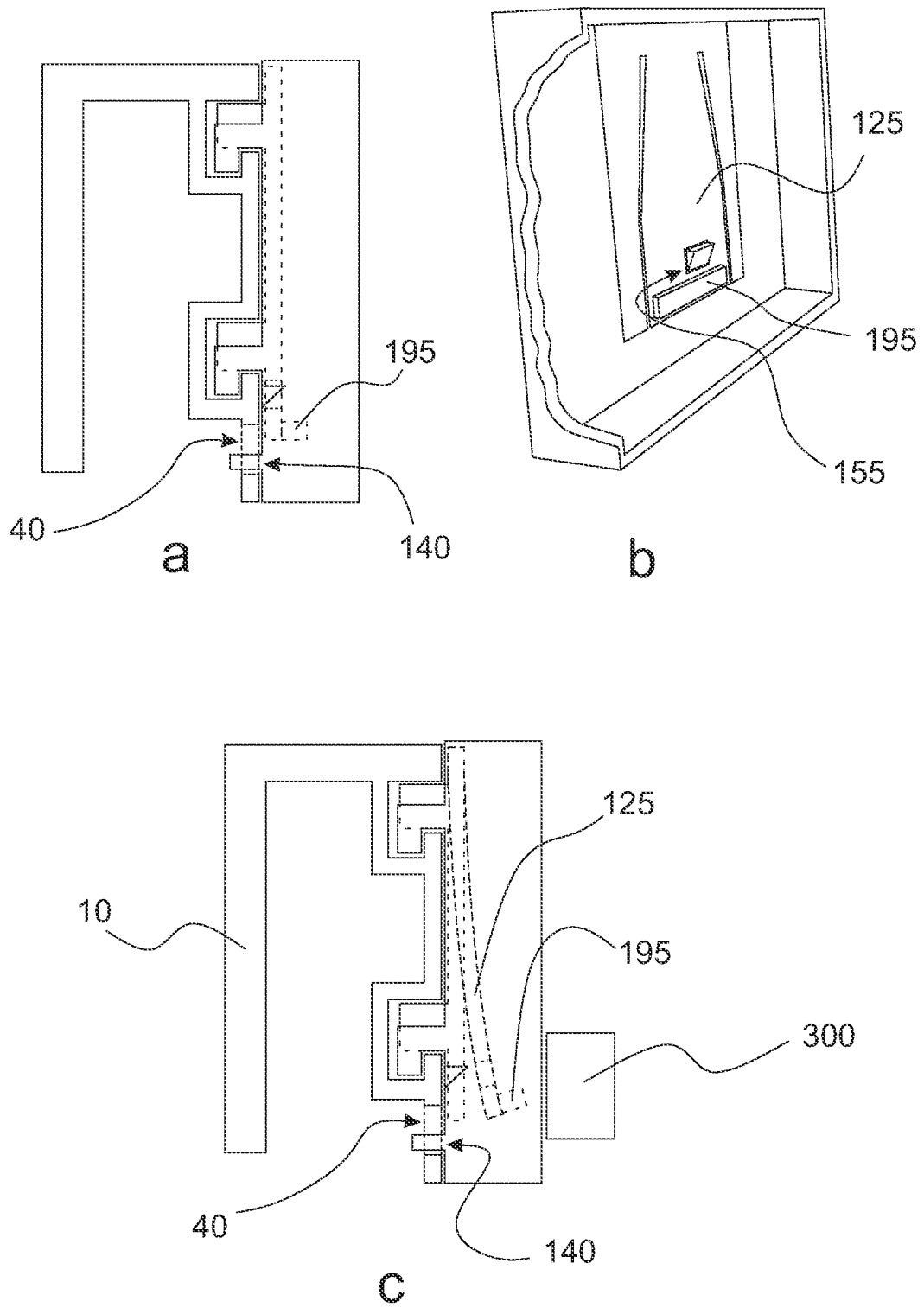
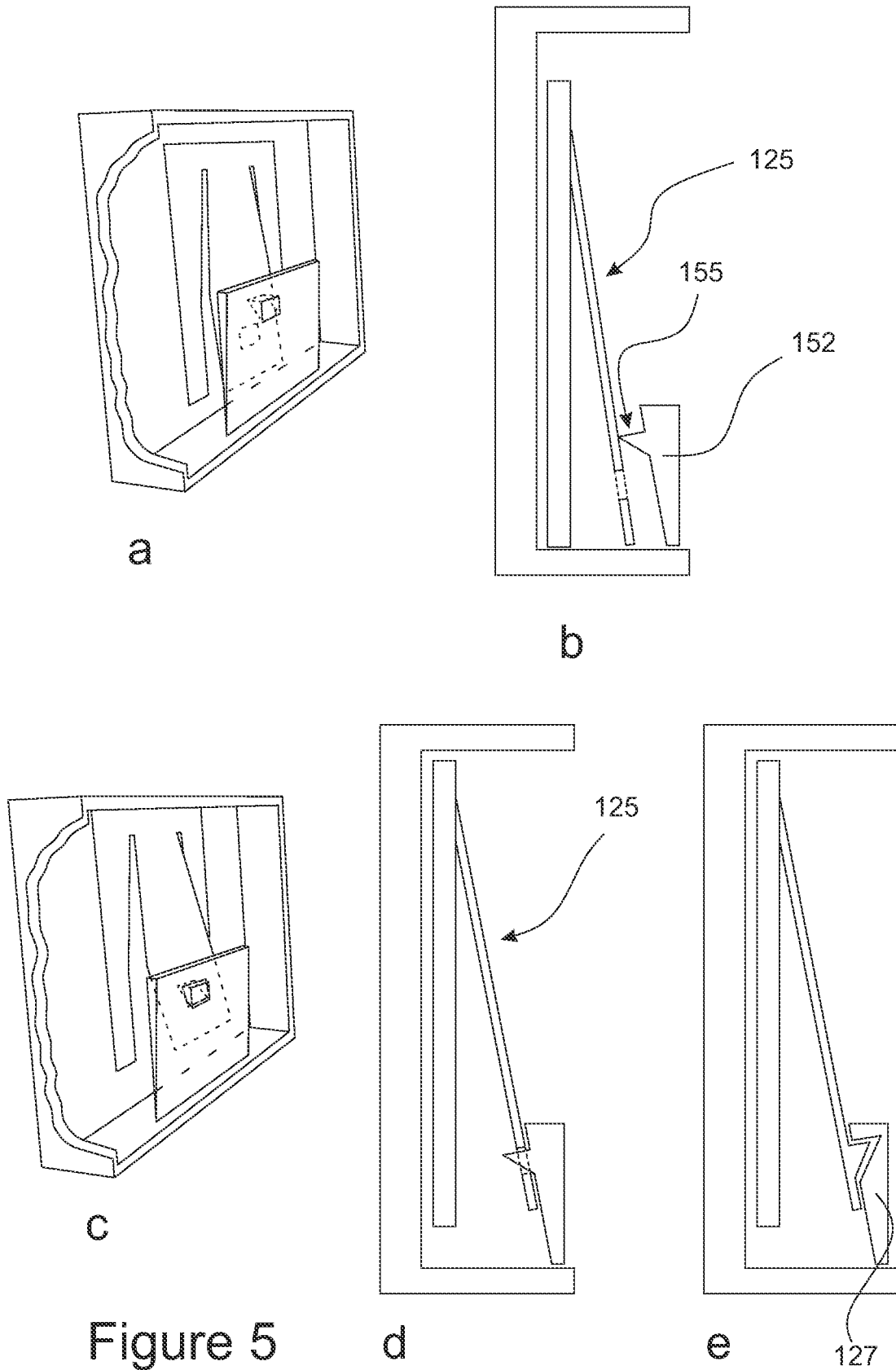


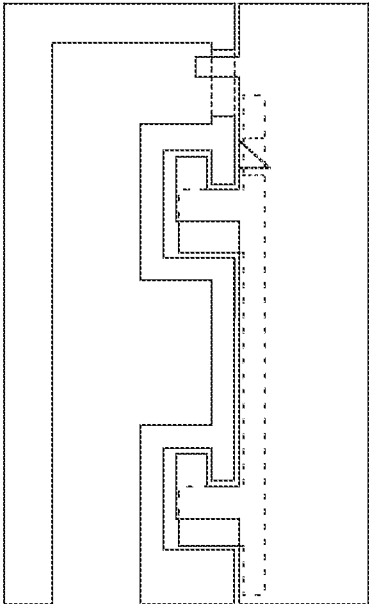
Figure 4

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a



b

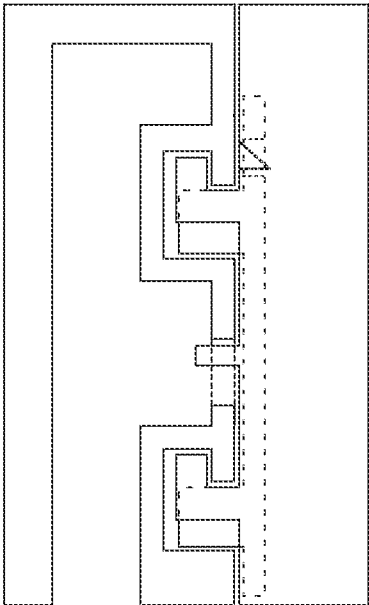
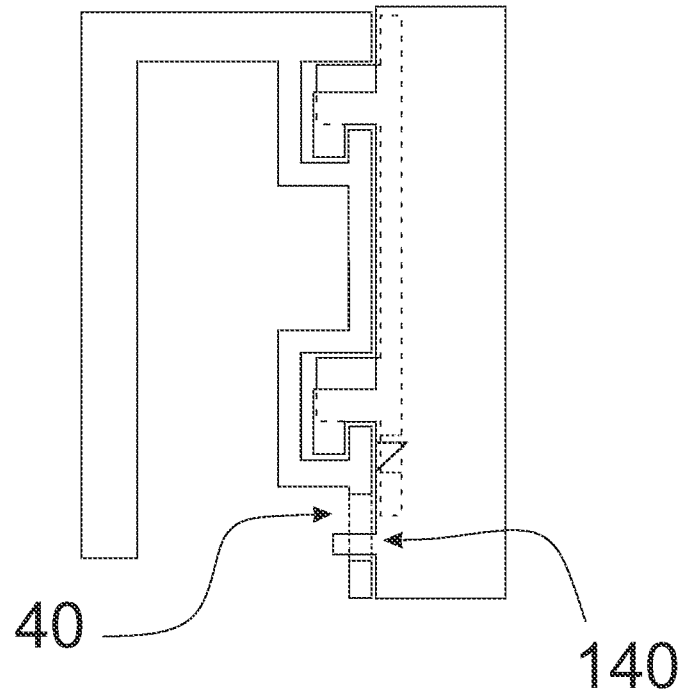


Figure 6

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a



b

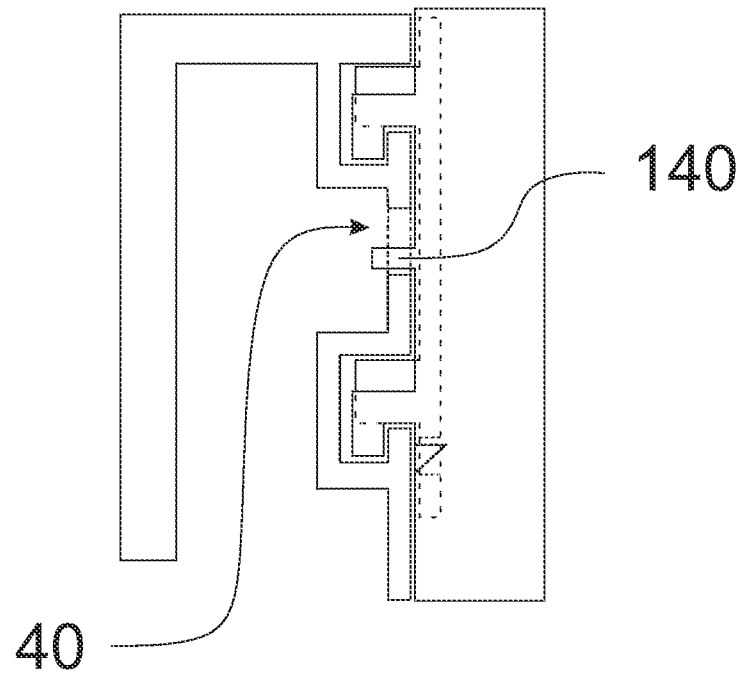


Figure 7

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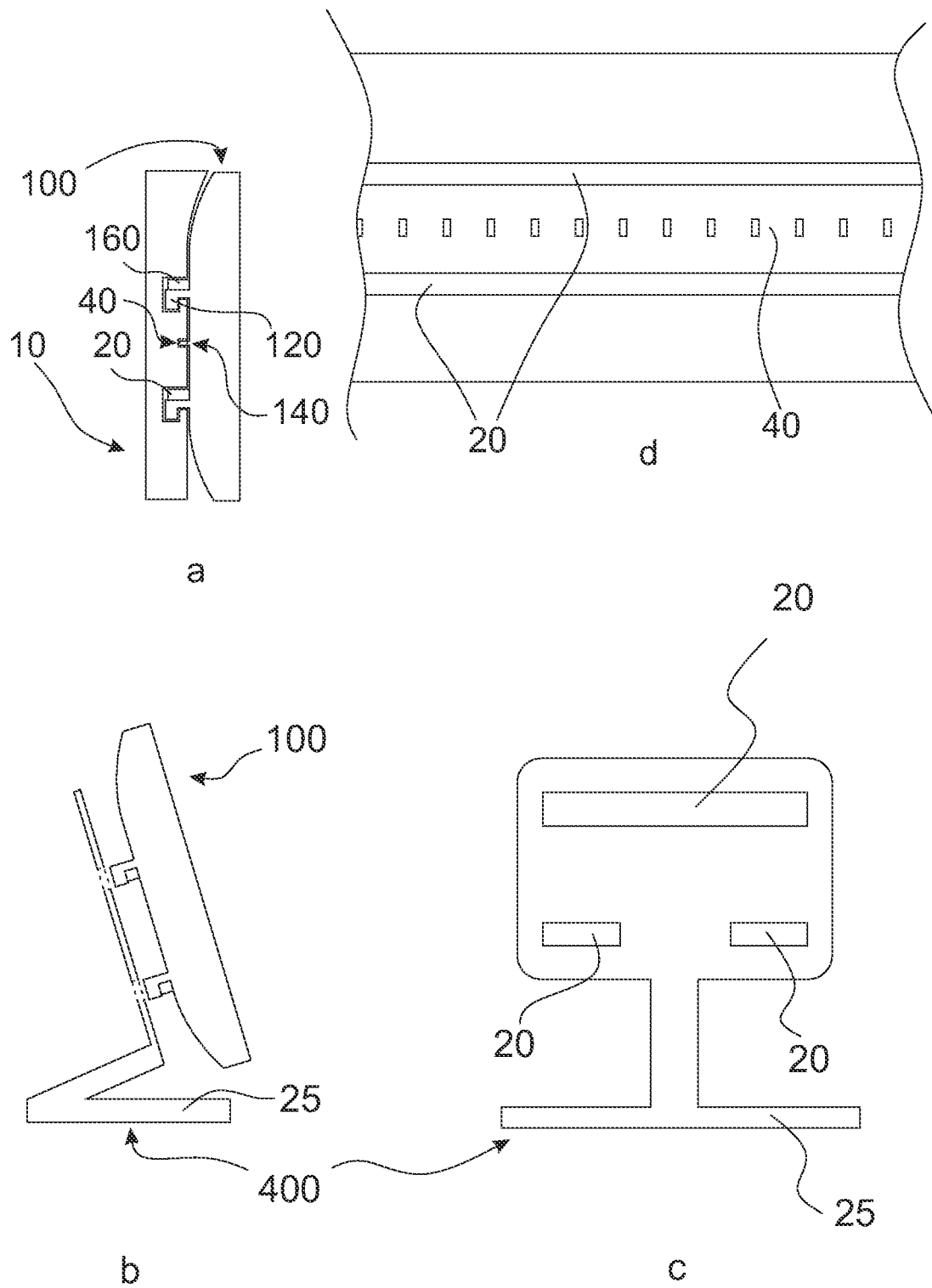
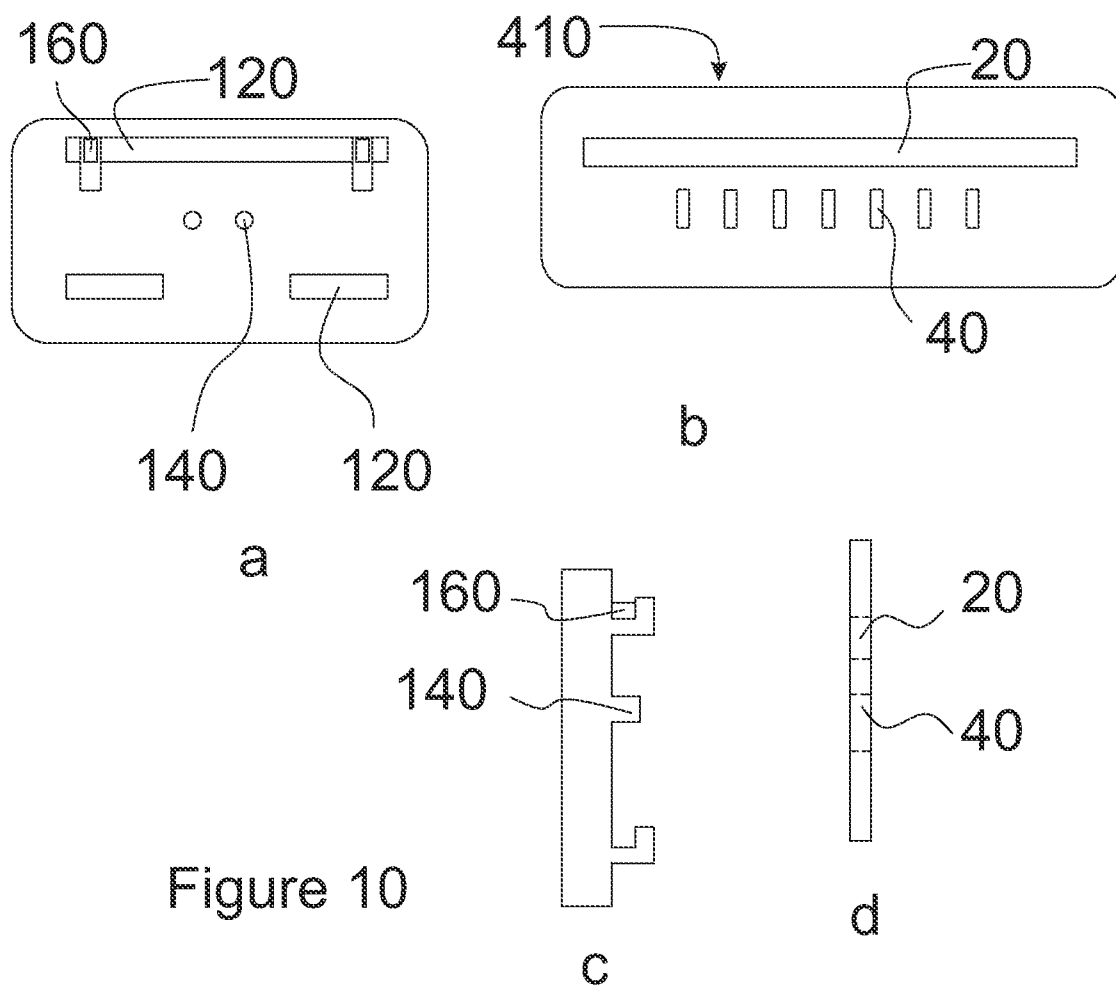
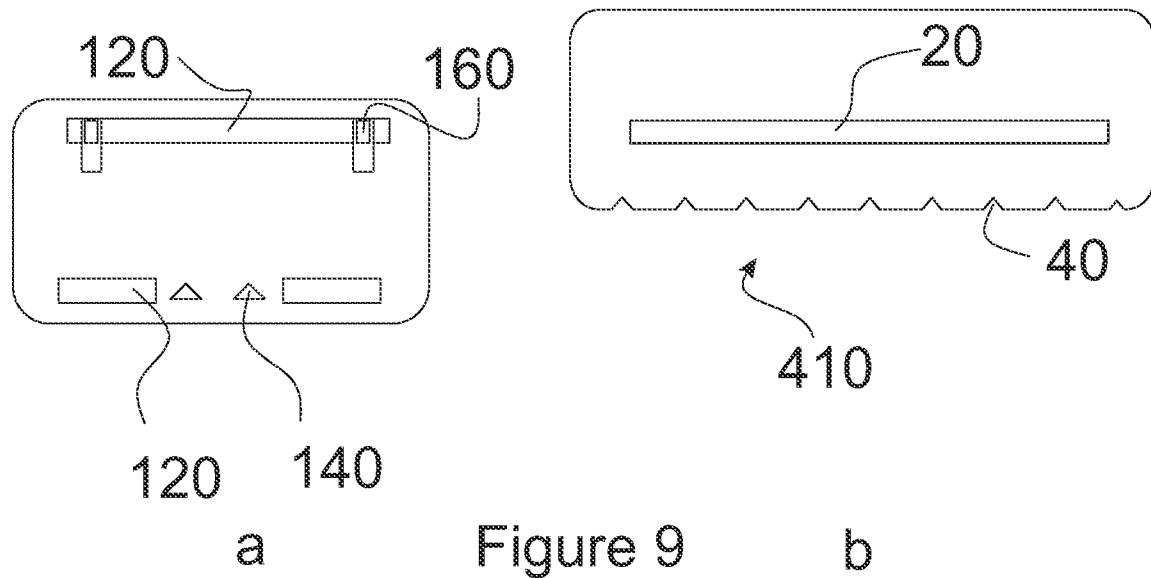


Figure 8

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2010/050258

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:A47F, G09F 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.
X	US 5473832 A (BRIECHLE GEORGE T ET AL), 12 December 1995 (1995-12-12); whole document	16
A	--	1-15
A	US 5553412 A (BRIECHLE GEORGE T ET AL), 10 September 1996 (1996-09-10); whole document	1-16
A	--	1-16
A	US 20040262470 A1 (LOWRY ET AL.), 30 December 2004 (2004-12-30); whole document	1-16
A	--	1-16
A	GB 2249854 A (SAINSBURY J PLC), 20 May 1992 (1992-05-20); whole document	1-16
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Date of the actual completion of the international search 14-06-2010		Date of mailing of the international search report 15-06-2010
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International Patent Classification (IPC)

G09F 3/20 (2006.01)

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Cited literature, if any, will be enclosed in paper form.

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PCT/SE2010/050258

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			CA	2493325 A1	05/02/2004
			EP	1540629 A1	15/06/2005
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			WO	2004012172 A1	05/02/2004
GB	2249854 A	20/05/1992	NONE		