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(54) SHELF MANAGEMENT SYSTEM

REGALVERWALTUNGSSYSTEM

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EP 3 305 137 B1

Description

TECHNICAL FIELD

[0001] The present invention relates to a shelf management system comprising a feeder device.

BACKGROUND

[0002] Stores that retail convenience goods or commodities on a daily basis often present their goods on shelves. In order to create an ordered display of these displayed goods and to enhance their presentation there is used shelf management systems comprising a number of different accessories, such as shelf dividers, different types of feeder devices for pushing the goods forwardly and different types of trays, etc. Such accessories are often mounted on the upper surface of the shelf.

[0003] Known technology allows these accessories to be affixed to the shelf in a number of different ways, for instance mechanically with the aid of screws or corresponding devices, by frictional engagement or by adhesion with the aid of double-sided adhesive tape or by corresponding means.

[0004] The devices used to fasten the accessories to the shelves will preferably have some fundamental properties. One important property resides in the ability to fasten the accessories at selected positions along the length of the shelving, so as to position the accessories in a selected space relationship that is adapted to suit different packages and different quantities of goods.

[0005] It is also particularly important that the accessories are securely held to the shelving. The fixing device should, of course, prevent the accessories from being loosened inadvertently from the shelving. It is also important that the accessories will not be displaced inadvertently along the shelving.

[0006] For reasons of space and also for aesthetical reasons it is preferable that the accessory fixing arrangement projects as slightly as possible from the upper surface of the shelving and its front side.

[0007] Shelf dividers are an example of accessories with which the space relationship of the accessories is particularly important. The shelf dividers often consist of partitioning walls which are fastened to the shelving such as to extend at right angles to the longitudinal direction of the shelving and to project perpendicularly therefrom. The primary purpose of the shelf dividers is to separate different groups of goods from one another and to create order on the shelving. Particularly when a goods pushing means is placed between two shelf dividers, it is essential that the shelf dividers are not displaced towards one another, not even to the slightest extent, since the friction between goods and shelf dividers may then become so great as to prevent advancement of the goods.

[0008] Feeder devices for merchandising in general are used for example in grocery stores where goods are exposed on the shelves. Feeder devices are used to push forward the exposed goods, arranged one behind the other, to the shelf's front edge, to facilitate the picking of the goods, improve visibility of the goods and make the shelf aesthetic appearance more appealing.

[0009] The feeder device may include a base or web which is placed on the shelf so that it extends from the shelf front edge in a rearward direction. A feed sled is slidably disposed on the base along its length. At automatic feeder devices the sled is forwardly biased, for example by a spring which is arranged on the backside of the sled and which at one end is attached to the front end of the base.

[0010] To improve the system of the shelves and to separate neighbouring goods from one another often feeder devices may be used together with shelf dividers or partitions. The dividers comprise a dividing wall that extends from the shelf front edge in an essentially rearward direction. Dividers may also comprise a front stop plate or front extending perpendicularly to dividing wall on one or both sides of said wall, to prevent goods from falling off the shelf. The dividers are attached to the shelf next to each other to form compartments in which the feeder devices are placed. The distance between dividers is chosen in accordance with the relevant goods width, so that the goods are brought into line with each other in their respective compartments. This minimizes the space required to store the goods on the shelf, while the shelf aesthetic appearance becomes more appealing. To fit the different products and product packaging, dividers can be designed in a variety of ways. For example, the dividing wall height may vary widely. Furthermore, the fronts of the dividers can be designed in a variety of ways, for example as regards the width, height and contour, to suit different goods and to provide desired visual impact for every occasion.

[0011] Feeder devices and dividers should be easy to assemble and disassemble from the shelf. The feeder devices and the partitions should be possible to fix at arbitrary positions laterally along the shelf, to thereby provide goods compartment with the desired width. A further desired feature is that the feeder devices and partitions allow easy refilling of goods when the compartments are running empty.

[0012] EP 0 337 340 discloses a shelf divider system comprising a divider wall mountable in a channel member secured to the front of a shelf. A spring-urged pusher member is slidably mounted on a track having a pair of rails integral with the divider wall. In one embodiment, the operationally mounted divider wall is vertically oriented and the pusher member extends horizontally therefrom so that displayed merchandise resets directly on the shelf surface but is automatically urged forwardly by the retracted pusher member. In another embodiment, the track provides the supporting surface for displayed merchandise and a vertical divider wall is integrally formed with the track.

[0013] EP 3 053 488 A1 discloses system for fixation of a shelf accessory such as a pushing device to a shelf.

The system comprises a shelf accessory and an elongate front fixation device having a longitudinal direction and being arranged to be fixed along the front edge of a shelf. The shelf accessory is arranged to be supported on an upper surface of a shelf and comprises a an engagement member and a resilient member which is arranged to press the engagement member into engagement with a longitudinal channel wall of the front fixation device and to allow corresponding disengagement by deformation of the resilient member.

[0014] US 2011/0139736 A1 discloses a product management display system comprising a front rail and a T-shaped base-and-divider-assembly which forms a first track, a divider and a second track. A front edge of the T-assembly may be engaged with the front rail for fixation of the T-assembly to a shelf. Another state of the art shelf management systems are known from WO 2006/019947 A2 and US 6 357 606 B1.

SUMMARY

[0015] It is an object of the present invention to provide an enhanced shelf management system with a feeder device for a shelf management system. Another object is to provide such a shelf management system which is easy to handle.

[0016] Still another object is to provide such a shelf management system which facilitates refilling of goods onto the shelf.

[0017] A further object is to provide such a shelf management system which is efficient and which may be accomplished by the use of only a limited number of different constituent components.

[0018] Yet another object is to provide such a shelf management system which may efficiently be used in connection with products that vary widely with regard to their geometry, size and weight.

[0019] A still further object is to provide such a system with a feeder device which may be flexibly used at various positions on a shelf and which may be flexibly positioned in relation to other accessories.

[0020] These and other objects are achieved by a shelf management system as set out in the preamble of claim 1, which system exhibits the special technical features specified in the characterizing portion of said claim. The shelf management system comprises a front fixation profile element arranged to be fixed along the front edge of a shelf and at least feeder device. The feeder device comprises a product support having a longitudinal direction extending between a front end and a rear end. A product feeder is displaceable along the product support and urged in the forward direction. At least one divider wall extends in parallel with said longitudinal direction. A front fixation member is arranged to releasably engage the front fixation profile element when fixed along the front edge of a shelf for releasable fixation of the feeder device at various positions along the front fixation profile element. At least one control surface extends rearwardly from the front fixation member, in parallel with the longitudinal direction of the product support and is arranged to face the upper surface of the shelf. The at least one control surface is provided with at least one stop recess, the dimensions of which is configured to receive the cross section of the front fixation profile element, which stop recess is positioned at a distance behind the front fixation member and configured to receive a portion of the front fixation profile element for preventing longitudinal displacement of the feeder device when the front fixation member is out of engagement with and positioned in front of the front fixation profile element

[0021] Since the feeder device comprises both a product support upon which the goods may be placed and at least one divider wall, the feeder device forms a modular unit which may be handled as a single unit for forming goods compartments on the shelf. When the feeder device comprises a single divider wall such compartments may readily be formed by positioning two feeder devices side-by-side on the shelf such that the divider wall of one feeder device forms the right hand partition of the compartment and the divider wall of the other feeder device forms the left hand partition. In cases where the feeder device comprises two divider walls, the single feeder device per se forms a compartment for the goods. This greatly facilitates setting up and re-arranging the shelf management system since only a limited number of components need so be individually placed onto and fixed to the shelf.

[0022] Additionally, the stop recess or stop recesses arranged in the control surface or surfaces allows for that the feeder device may be released from the front fixation profile element and thereafter pulled forward to an extended position relative to the shelf, in which position the front fixation profile element engages the stop recess to thereby prevent the feeder device from being unintentionally pulled further forward. By this means the feeder device may readily be maintained in the extended position thereby to allow easy refilling of goods onto the feeder device. In the extended position such refilling is facilitated since the space above the extended portion of the feeder device is free and not obstructed by any shelf arranged above the shelf at which the feeder device in question is positioned. At modern grocery stores and the like the available space for storing and displaying the merchandise is limited. For this reason the vertical distance between adjacent shelves is kept to a minimum. This in turn makes it, at previously known shelf management systems, difficult to access the goods compartments arranged on the shelves such as when refilling the compartments. By allowing the feeder device to be maintained in an extracted position, where at least a front portion of the feeder device extends in front of the shelf, access to the compartment is greatly facilitated. At the same time, the engagement between the stop recess and the front fixation profile element prevents the feeder device from being unintentionally displaced further forward thereby avoiding the risk of the feeder device falling

forwards, off the shelf.

[0023] At least one stop recess may be arranged in front of the longitudinal centre of the product support. Alternatively, at least one stop recess may be arranged in front of the centre of gravity of the feeder device. By this means it is assured that a sufficient longitudinal portion of the feeding device is supported by the shelf also in an extended position corresponding to the stop recess in question, such that to eliminate or reduce the risk of forward tipping of the feeder device.

[0024] The feeder device may comprise a plurality of stop recesses arranged one after the other in the longitudinal direction of the product support. By this means the feeder device may be maintained different longitudinal positions corresponding to different degrees of forwards protrusion beyond the front edge of the shelf.

[0025] The feeder device may comprise a plurality of control surfaces arranged side by side in parallel with the longitudinal direction, each control surface being provided with at least one stop recess, wherein the stop recesses are arranged in sets, each set comprising a stop recess formed in each control surface at equal longitudinal distance from the front end of the product support.

[0026] The control surface may be formed at a shelf facing edge of the divider wall.

[0027] The feeder device may comprise two divider walls each being provided with a control surface.

[0028] At least one divider wall may be adjustably displaceable in a direction perpendicular to the longitudinal direction. This allows for easy adjustment of the width of a goods compartment formed by one or two adjacent feeder devices.

[0029] The feeder device may comprise a first handle arranged at or in proximity to the front fixation member. This further facilitates handling of the feeder device and allows easy extraction of the feeder device to the extended position.

[0030] The first handle may be arranged at a front product stop extending upwardly from the front fixation member.

[0031] The product support may comprise at least two rods which extend longitudinally from the front fixation member to a rear mounting member. This allows for that the goods may be supported by the feeder device at low friction thereby facilitating forward feeding. Additionally, forming the product support by rods reduces the material needed for forming the feeder device and thereby the manufacturing cost and the weight of the device.

[0032] The at least one divider wall may comprise a front mounting rod and a rear mounting rod, which mounting rods extend perpendicular to the longitudinal direction and are displaceably fixed to the front fixation member and the rear mounting member respectively.

[0033] The rear mounting member may comprise a second handle. This further facilitates handling of the feeder device and allows for that the entire feeder device may readily be lifted off from and onto the shelf also when goods is placed on the product support.

[0034] The dimensions of the at least one stop surface may be configured to receive the cross section of the front fixation profile element.

[0035] The longitudinal extension of the at least one stop recess may be equal to or somewhat larger than the outer width of the cross section of the front fixation profile element.

[0036] The height of the at least one stop recess, perpendicular to the support surface may be equal to or somewhat larger than the outer height of the cross section of the front fixation profile element.

[0037] The front fixation profile element may comprise a first channel and a first flange, which extend in parallel to the longitudinal direction of the front fixation profile element and the front fixation member may comprise a second flange which is insertable in the first channel and a second channel which is arranged to receive the first flange for fixation of the feeder device to the front fixation profile element. Herby a sturdy fixation of the feeder device is achieved in a simple manner.

[0038] The first channel and the second flange may be provided with mutually engaging dents for preventing displacement of the feeder device along the front fixation profile element when the first and second channels and flanges are in mutual engagement.

[0039] Further objects and advantages of the invention will appear from the following detailed description of embodiments and from the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040] Embodiments will be described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a shelf provided with a shelf management system comprising a feeder device according to an embodiment of the invention.

Fig. 2 is a perspective view of a portion of a front fixation profile element comprised in the shelf management system shown in fig. 1.

Figs. 3a and 3b are perspective views from different angles illustrating a portion of the feeder device shown in fig. 1.

Figs. 4a-c are side elevation views of a portion of the shelf management system shown in fig. 1 and illustrating the feeder device at different stages of fixation to the front fixation profile element.

Fig. 5a is a perspective view of the shelf management system shown in fig 1 and illustrates the feeder device positioned in a different operating position.

Fig. 5b is a side elevation of the shelf management system shown in fig 5a, and fig 5c shows a detail in enlarged scale thereof.

Fig. 6 is a perspective view corresponding to fig. 5a and illustrates the feeder device in a further operating position.

Fig. 7a is a perspective view corresponding to fig 5a

and illustrates the feeder device positioned in a still further operating position. Fig. 7b is a side elevation of the shelf management system shown in fig. 7a, and fig 7c shows a detail in enlarged scale thereof.

DETAILED DESCRIPTION

[0041] Embodiments will now be described more fully hereinafter and with reference to the accompanying drawings, in which certain embodiments are shown. However, other embodiments in many different forms are possible within the scope of the present disclosure. Rather, the following embodiments are provided by way of example so that this disclosure will be thorough and complete, and will fully convey the scope of the disclosure to those skilled in the art. Like numbers refer to like elements throughout the description.

[0042] Fig. 1 illustrates a shelf 1 provided with a shelf management system according to an embodiment of the invention. The shelf management system comprises a front fixation profile element 10 and a feeder device 20. The front fixation profile element 10 is fixed to the shelf 1 along the front edge of the shelf. The front fixation profile element 10 has a longitudinal direction extending in parallel with the front edge of the shelf and exhibits a generally constant cross section. The front fixation profile element may be fixed to the shelf e.g. by means of double sided adhesive tape (not shown), glue, magnets, screws, rivets or by other means.

[0043] Fig. 2 illustrates the front fixation profile element 10 more in detail. As seen in fig. 2 the front fixation profile element 10 comprises a base member 11 and a front wall12 which extends upwardly from a front edge of the base portion 11. A top wall 13 extends generally backward from the free end of the front wall 12. By this means a first channel 14 is formed by a front portion of the base member 11, the front wall 12 and the top wall 13. A plurality of dents 15 are arranged one after the other in the longitudinal direction of the front fixation profile element 10, such that they extend backwards into the first channel 14 from an upper portion of the front wall 12. A first flange 16 extends upwardly from the rear edge of the base member 11. In the shown example, the first flange 16 is formed of a first rear wall 16a extending upward from the rear edge of the base member 11, a rear top wall 16 extending backward from the free edge of the first rear wall 16a and a second rear wall 16c extending downwards from the rear edge of the rear top wall 16b in parallel to the first rear wall 16a. The free edge of the second rear wall 16c is arranged at the same vertical level as a bottom surface of the base member 11 such that both the base member and the second rear wall are supported by the shelf 1.

[0044] With reference to figs. 1, 3a and 3b, the feeder device 20 comprises a front fixation member 30 which is arranged to engage the front fixation profile element 10 for fixation of the feeder device to the shelf 1. The front fixation member 30 comprises an intermediate portion 31, a forwardly projecting second flange 32 extending from a front portion of the intermediate portion 31 and a second channel 33 arranged at the rear edge of the intermediate portion 31. The second flange 32 is provided with a number of dents 32a which are arranged to engage the corresponding dents 15 arranged in the first channel 14.

[0045] In the shown example a front product stop 34 is formed integral with the front fixation member 30 and extends upwardly from the intermediate portion 31. A front handle 35 is formed as a through opening in the front product stop 34. The second channel 33 is defined by a first channel wall 33a extending upwardly from a rear edge of the intermediate portion 31, a second channel wall 33b extending backwardly from the upper edge of the first channel wall and a third channel wall 33c extending downwardly from the rear edge of the second channel wall 33b.

[0046] Again referring to fig. 1, the feeder device further comprises a rear mounting member 40. The rear mounting member 40 is provided with a rear handle 41 which is formed by a through opening in the rear mounting member.

[0047] The feeder device 20 also comprises a product support 50 which is arranged to support goods placed on the feeder device and which extends in the longitudinal direction of the feeder device 20 from a front end to a rear end of the feeder device 20. In the shown example, the product support comprises four rods 51 which extend in the longitudinal direction of the feeder device from the front fixation member 30 to the rear mounting member 40. Each rod is fixed by press fitting of respective ends thereof in corresponding bores or recesses (not shown) formed in the front fixation member 30 and the rear mounting member 40.

[0048] A product feeder 60 is arranged slideably displaceable along the product support 50. The product feeder 60 comprises a product back support 61, two vertical guide slots 62 and two horizontal guide slots 63 (only one visible in fig. 1). The guide slots 62, 63 are arranged to receive a respective one of the rods 51 and to guide the sliding movement of the product feeder along the product support 50 in the horizontal sideways directions and both vertical directions respectively.

[0049] The feeder device 20 also comprises urging means (not shown) for urging the product feeder 60 in the forward direction along the product support 50. The urging means may be formed in a number of different ways as known in the art. For example, the urging means may comprise one a wounded spiral spring which is received in a spring compartment arranged at the rear side of the product feeder and which has a free end which is attached to the front fixation member.

[0050] The feeder device 20 further comprises a first 70a and a second 70b divider wall. Each divider wall 70a, 70b comprises a plate shaped member 71a, 71b which extends vertically and in parallel with the longitudinal direction of the product support 50 and two fixation rods 72a, 72b which extend horizontally and perpendicular to

the longitudinal direction of the product support 50. The free ends of the fixation rods 72a, 72b are received in a respective lateral fixation bore or groove (not shown) arranged in the front fixation member 30 and the rear mounting member 40. The fixation rods 72a, 72b are longitudinally displaceably received in the respective bores or grooves such that the plate shaped members may be laterally displaced relative to the product support 50 to thereby allow adjustment of the width of a product compartment formed between the first 70a and second 70b divider walls. Preferably, the fixation rods 72a, 72b are received in the fixation bores or grooves with friction fit such as to maintain the position of the first 70a and second 70b divider wall after manual adjustment. Additionally, the fixation rods 72a, 72b and the fixation bores or grooves may be provided with cooperating stop means (not shown) for preventing unintentional removal of the divider walls 70a, 70b from the front fixation member 20 and the rear mounting member 40.

[0051] The lower edges of the plate shaped members 71a, 71b each constitute a control surface 73a, 73b which faces the upper surface of the shelf 1 and which extends in parallel with the longitudinal direction of the product support 50. In the shown example the control surfaces 73a, 73b are arranged to be positioned at a small distance above the shelf 1 when the feeder device is fixed to the shelf 1 by means of the front fixation profile element. In this case the lower surfaces of the front fixation member 30 and the rear mounting member 40 makes contact with the upper surface of the shelf and thus forms support surfaces by which the feeder device 20 is supported on the shelf 1.

[0052] However, at an alternative embodiment (not shown), the control surfaces arranged at the divider walls may be arranged to make contact with the upper surface of the shelf thereby forming additional support surfaces for the feeder device. At a further embodiment (not shown) the control surfaces of the divider walls are arranged at a vertical level below the lower surfaces of the front fixation member and the rear mounting member whereby the control surfaces may form the sole support surfaces of the feeder device.

[0053] Each control surface 73a, 73b is provided with a first 74a, 74b, a second 75a, 75b and a third 76a, 76b stop recess. On each divider wall 70a, 70b, the stop recesses are arranged spaced apart one after the other in the longitudinal direction. The first stop recesses 74a, 74b forms a fist set of stop recesses wherein both first stop recesses are arranged at a first longitudinal distance from the front end of the product support 50. Correspondingly, the second stop recesses 75a, 75b are arranged at a second longitudinal distances from the front end of the product support 50, which is grater that the first distance, and form a second set of stop recesses. The third stop recesses 76a, 76b are arranged at a third longitudinal distance being greater than the second distance and form a third set of stop recesses and form a third set of stop recesses..

[0054] The first set of stop recesses 74a, 74b are arranged in front of the longitudinal centre of the product support. The first set of stop recesses 74a, 74b are also arranged in front of the gravitational centre of the feeder device 20. In the shown example the first set of stop recesses 74a, 74b are arranged approximately at a distance of one third of the total length of the feeder device from the front end of the product support 50. The second set of stop recesses 75a, 75b are arranged approximately two thirds of the length of the feeder device 20 from the front end of the product support 50. The third set of stop recesses 76a, 76b are arranged in proximity to the rear end of the product support 50.

[0055] The first 74a, 74b and second 75a, 75b stop recesses are formed as downwardly open rectangular cut outs in the plate shaped members 71a, 71b. The longitudinal extension of the first 74a, 74b and second 75a, 75b recesses is equal to or slightly larger that the maximum width of the cross section of the front fixation profile element 10. The height perpendicular to the control surfaces 73a, 73b of the first 74a, 74b and second 75a, 75b stop recesses is approximately equal to the maximum height of the cross section of the front fixation profile element 10.

[0056] By this means a longitudinal portion of the front fixation profile element 10 may be received in each of the first 74a, 74b and second 75a, 75b stop recesses to thereby prevent the feeder device from being unintentionally displaced forwardly or backwardly relative to the front fixation profile element 10 and the shelf 1.

[0057] The third stop recesses 76a, 76b are formed as downwardly open triangular cut outs in the plate shaped members 71a, 71b. The third stop recesses 76a, 76b exhibit a forwardly tapering first edge and a second edge which extends generally perpendicular to the control surfaces 73a, 73b.

[0058] Figs. 4a-c illustrates how the feeder device may be fixed to the shelf 1 by means of the cooperating front fixation member 30 and front fixation profile element 10. As seen in fig. 4a, the feeder device 20 is first kept in a tilted position and the second flange 32 is positioned just behind the first channel 14. Thereafter, as seen in fig. 4b, the feeder device 20 is displaced forwardly such that the second flange 32 is introduced into the first channel 14 and the second channel 33 is aligned with the first flange 16. From this position and as seen in fig. 4c, the rear portion of the feeder device 20 is tilted downwards until the lower surface of the rear mounting member 40 makes contact with the upper surface of the shelf 1. During this tilting movement, the second flange 32 is displaced further forwardly and pivotally rotated into the first channel 14 and the second dents 32a are brought into engagement between the first dents 15. Simultaneously the first flange 16 is received in the second channel 33. Hereby, the feeder device 20 is engaged with the front fixation profile element 10 and prevented from being displaced along the longitudinal directions of both the front fixation profile element 10 and the product support 50.

The engagement also prevents the feeder device 20 from rotating about a rotational axis normal to the shelf plane and a rotational axis extending in parallel with the longitudinal direction of the product support 50. The position of the feeder device 20 shown in figs. 1 and 4c thus forms the normal operating position of the feeder device when used for storing, displaying and feeding goods such that the goods is readily seen and picked from the shelf by customers.

[0059] When it is desired to release the feeder device 20 from the front fixation profile element 10 the above described operations are carried out in reverse order.

[0060] For example when refilling the feeder device 20 with goods or when carrying out inspection or maintenance, it may be desired to pull out a portion or essentially the entire feeder device from the shelf. Such extraction of the feeder device facilitates access to the feeder device.

[0061] Figs. 5a-c illustrate the shelf management system when the feeder device 20 has been pulled out to a first extended maintenance position. As seen in the figures the front fixation member 30 has been released from engagement with the front fixation profile element 10 as described above. The feeder device has thereafter, e.g. by manually gripping the front handle 35 been pulled forward above the front fixation profile element 10 a certain distance corresponding the first distance between the front end of the product support 50 and the first stop recesses 74a, 74b. During this forward movement of the feeder device 20, the lower surface of the rear mounting member 40 may maintain its supporting contact with the upper surface of the shelf 1 such that it is sufficient to lift inly a front portion of the feeder device 20 above the front fixation profile element 10. Thereafter, the front portion of the feeder device 20 is lowered until the front fixation profile element 10 is received in the first stop recesses 74a, 74b. As best seen in fig. 5c the upper edge of the first stop recesses 74a, 74b now is supported by the top wall 13 of the front fixation profile element 10. When the front fixation profile element 10 is received in the first stop surfaces 74a, 74b mutual contact between the second rear wall 16c of the first flange 16 and the rear edge of the first stop recesses 74a, 74b will prevent the feeder device from being displaced forwardly. Correspondingly, mutual contact between the front wall 12 and the front edge of the first stop recesses 74a, 74b prevents the feeder device from being displaced rearwardly. Since the first stop recesses 74a, 74b are arranged in front of the gravitational longitudinal centre of the feeder device 20, the feeder device does not run the risk of falling of the shelf and the feeder device may readily be refiled or otherwise maintained using both hands of the person carrying out the refill or maintenance operation.

[0062] In fig. 6 it is illustrated how the feeder device 20 has been pulled out further from the shelf 1 such that a larger portion of the feeder device 20 protrudes forwardly from the front edge of the shelf 1. At this position the second stop recesses 75a, 75c receive the front fixation profile element 10 and prevents forward and backward displacement of the feeder device in a manner which fully corresponds to the position shown in figs 5a-c and described above. However, since the second stop recesses 75a, 75b are arranged at a distance corresponding to two thirds of the length product support 50, the gravitational longitudinal centre of the feeder device is here arranged in front of the front edge of the shelf 1. For preventing the feeder device 20 from pivoting forwardly and falling off the shelf 1, the feeder device 20 may readily be supported by gripping the front handle 35 by one hand wher by the operating persons other hand may be used for refilling the feeder devices or carrying out any other maintenance operations.

[0063] Figs. 7a-c finally illustrates how the feeder device 20 has been pulled out even further from the shelf and how the front fixation profile element 10 engages the third stop recesses 76a, 76b. At this position forward movement of the feeder device 20 is prevented by the rear edge of the third stop recesses 76a, 76b making contact with the rear edge of the top wall 13 of the front fixation profile element 10. However, the forwardly sloping edge of the triangular third stop recesses 76a, 76b allows for that the feeder device is readily pushed backwards, e.g. to the position shown in fig. 6. At the fully extended position shown in figs 7a-c essentially the entire feeder device is readily accessed without interference or obstruction of any shelf or shelf accessory arranged above the shelf 1 carrying the feeder device 20. Also at this position he front handle 35 may readily be gripped by one hand for preventing the feeder device 20 from falling of the shelf 1.

[0064] The present disclosure has mainly been described above with reference to a few embodiments. However, as is readily appreciated by a person skilled in the art, other embodiments than the ones disclosed above are equally possible within the scope of the present disclosure, as defined by the appended patent claims. For example one or several control surfaces provided with at least one stop recess may, instead of being arranged at the divider walls, be arranged at the lower surface of a product support. The control surface or surfaces may or may not form a support surface of the feeder device for supporting the feeder device on the top surface of the shelf. The control surface or control surfaces may each be provided with a single stop recess or any number of stop recesses arranged at any chosen longitudinal position of the feeder device.

Claims

1. A shelf management system comprising a front fixation profile element (10) arranged to be fixed along the front edge of a shelf (1) and at least one feeder device (20) which feeder device comprises;

   - a product support (50) having a longitudinal

direction extending between a front end and a rear end,
- a product feeder (60) which is displaceable along the product support and urged in the forward direction,
- at least one divider wall (70a, 70b) which extends in parallel with said longitudinal direction,
- a front fixation member (30) arranged to releasably engage the front fixation profile element (10) when fixed along the front edge of a shelf (1) for releasable fixation of the feeder device at various positions along the front fixation profile element,
- at least one control surface (73a, 73b) extending rearwardly from the front fixation member, in parallel with the longitudinal direction of the product support and being arranged to face the upper surface of the shelf,

wherein the at least one control surface (73a, 73b) is provided with at least one stop recess (74a, 74b, 75a, 75b, 76a, 76b), **characterized in that** the dimensions of the at least one stop recess (74a, 74b, 75a, 75b, 76a, 76b) is configured to receive the cross section of the front fixation profile element, which stop recess is positioned at a distance behind the front fixation member (30) and configured to receive a longitudinal portion of the front fixation profile element (10) for preventing longitudinal displacement of the feeder device (20) when the front fixation member (30) is out of engagement with and positioned in front of the front fixation profile element (10).

2. A shelf management system according to claim 1, wherein at least one stop recess (74a, 74b) is arranged in front of the longitudinal centre of the product support (50).

3. A shelf management system according to claim 1 or 2, comprising a plurality of stop recesses (74a, 74b, 75a, 75b, 76a, 76b) arranged one after the other in the longitudinal direction of the product support (50).

4. A shelf management system according to any of claim 1-3, comprising a plurality of said control surfaces (73a, 73b) arranged side by side in parallel with the longitudinal direction, each control surface being provided with at least one stop recess (74a, 74b, 75a, 75b, 76a, 76b), wherein the stop recesses are arranged in sets, each set comprising a stop recess formed in each control surface at equal longitudinal distance from the front end of the product support (50).

5. A shelf management system according to any of claims 1-4, wherein the control surface (73a, 73b) is formed at a shelf facing edge of the divider wall (70a, 70b).

6. A shelf management system according to claim 5, comprising two divider walls (70a, 70b) each being provided with a control surface (73a, 73b).

7. A shelf management system according to any of claims 1-6, wherein the at least one divider wall (70a, 70b) is adjustably displaceable in a direction perpendicular to the longitudinal direction.

8. A shelf management system according to any of claims 1-7, comprising a first handle (35) arranged at or in proximity to the front fixation member (30).

9. A shelf management system according to claim 8, wherein the first handle (35) is arranged at a front product stop (34) extending upwardly from the front fixation member (30).

10. A shelf management system according to any of claims 1-9, wherein the product support (50) comprises at least two rods (51) which extend longitudinally from the front fixation member (30) to a rear mounting member (40).

11. A shelf management system according to claim 10, wherein the at least one divider wall (70a, 70b) comprises mounting rods (72a, 72b) each mounting rod extending perpendicular to the longitudinal direction and being displaceably fixed to the front fixation member or the rear mounting member.

12. A shelf management system according to claim 10 or 11, wherein the rear mounting member (40) comprises a second handle (41).

13. A shelf management system according to any of claims 1-12, wherein the longitudinal extension of the at least one stop recess (74a, 74b, 75a, 75b) is equal to or somewhat larger than the outer width of the cross section of the front fixation profile element (10).

14. A shelf management system according to any of claims1-13-, wherein the height of the at least one stop recess (74a, 74b, 75a, 75b), perpendicular to the support surface (73a, 73b) is essentially equal to the outer height of the cross section of the front fixation profile element (10).

15. A shelf management system according to any of claims 1-14, wherein the front fixation profile element (10) comprises a first channel (14) and a first flange (16), which extend in parallel to the longitudinal direction of the front fixation profile element and wherein the front fixation member (30) comprises a second flange (32) which is insertable in the first channel (14) and a second channel (33) which is arranged to receive the first flange (14) for fixation of the feeder

device (20) to the front fixation profile element (10).

16. A shelf management system according to claim 15, wherein the first channel (14) and the second flange (33) are provided with mutually engaging dents (15, 32a) for preventing displacement of the feeder device (20) along the front fixation profile element (10) when the first and second channels and flanges are in mutual engagement.

Patentansprüche

1. Regalverwaltungssystem, das ein vorderes Befestigungsprofilelement (10), das dazu angeordnet ist, entlang der vorderen Kante eines Regals (1) befestigt zu werden, und mindestens eine Zuführungsvorrichtung (20) umfasst, wobei die Zuführungsvorrichtung Folgendes umfasst:

- eine Produktauflage (50), die eine Längsrichtung aufweist, die sich zwischen einem vorderen Ende und einem hinteren Ende erstreckt,
- eine Produktzuführung (60), die entlang der Produktauflage verschiebbar ist und in Vorwärtsrichtung gedrückt wird,
- mindestens eine Trennwand (70a, 70b), die sich parallel zur Längsrichtung erstreckt,
- ein vorderes Befestigungselement (30), das dazu angeordnet ist, lösbar mit einem vorderen Befestigungsprofilelement (10) in Eingriff zu stehen, wenn es entlang der vorderen Kante eines Regals (1) befestigt ist, um die Zuführungsvorrichtung an verschiedenen Positionen entlang des vorderen Befestigungsprofilelements lösbar zu befestigen,
- mindestens eine Steuerfläche (73a, 73b), die sich von dem vorderen Befestigungselement parallel zur Längsrichtung der Produktauflage nach hinten erstreckt und dazu angeordnet ist, der oberen Oberfläche des Regals zugewandt zu sein,

wobei die mindestens eine Steuerfläche (73a, 73b) mit mindestens einer Anschlagaussparung (74a, 74b, 75a, 75b, 76a, 76b) versehen ist,
dadurch gekennzeichnet, dass die Abmessungen der mindestens einen Anschlagaussparung (74a, 74b, 75a, 75b, 76a, 76b) dazu konfiguriert sind, den Querschnitt des vorderen Befestigungsprofilelements aufzunehmen, wobei die Anschlagaussparung mit einem Abstand hinter dem vorderen Befestigungselement (30) positioniert und dazu konfiguriert ist, einen Längsabschnitt des vorderen Befestigungsprofilelements (10) aufzunehmen, um eine Längsverschiebung der Zuführungsvorrichtung (20) zu verhindern, wenn das vordere Befestigungselement (30) außer Eingriff mit dem vorderen Befestigungsprofilelement (10) ist und vor diesem positioniert ist.

2. Regalverwaltungssystem nach Anspruch 1, wobei mindestens eine Anschlagaussparung (74a, 74b) vor der Längsmitte der Produktauflage (50) angeordnet ist.

3. Regalverwaltungssystem nach Anspruch 1 oder 2, das eine Vielzahl von Anschlagaussparungen (74a, 74b, 75a, 75b, 76a, 76b) umfasst, die in Längsrichtung der Produktauflage (50) hintereinander angeordnet sind.

4. Regalverwaltungssystem nach einem der Ansprüche 1-3, das eine Vielzahl der Steuerflächen (73a, 73b) umfasst, die Seite an Seite parallel zur Längsrichtung angeordnet sind, wobei jede Steuerfläche mit mindestens einer Anschlagaussparung (74a, 74b, 75a, 75b, 76a, 76b) versehen ist, wobei die Anschlagaussparungen in Sätzen angeordnet sind, wobei jeder Satz eine Anschlagaussparung umfasst, die in jeder Steuerfläche in gleichem Längsabstand von dem vorderen Ende der Produktauflage (50) ausgebildet ist.

5. Regalverwaltungssystem nach einem der Ansprüche 1-4, wobei die Steuerfläche (73a, 73b) an einer dem Regal zugewandten Kante der Trennwand (70a, 70b) ausgebildet ist.

6. Regalverwaltungssystem nach Anspruch 5, das zwei Trennwände (70a, 70b) umfasst, die jeweils mit einer Steuerfläche (73a, 73b) versehen sind.

7. Regalverwaltungssystem nach einem der Ansprüche 1-6, wobei die mindestens eine Trennwand (70a, 70b) in einer Richtung senkrecht zur Längsrichtung einstellbar verschiebbar ist.

8. Regalverwaltungssystem nach einem der Ansprüche 1-7, das einen ersten Griff (35) umfasst, der an oder in der Nähe des vorderen Befestigungselements (30) angeordnet ist.

9. Regalverwaltungssystem nach Anspruch 8, wobei der erste Griff (35) an einem vorderen Produktanschlag (34) angeordnet ist, der sich vom vorderen Befestigungselement (30) nach oben erstreckt.

10. Regalverwaltungssystem nach einem der Ansprüche 1-9, wobei die Produktauflage (50) mindestens zwei Stäbe (51) umfasst, die sich in Längsrichtung von dem vorderen Befestigungselement (30) zu einem hinteren Montageelement (40) erstrecken.

11. Regalverwaltungssystem nach Anspruch 10, wobei die mindestens eine Trennwand (70a, 70b) Monta-

gestäbe (72a, 72b) umfasst, wobei sich jeder Montagestab senkrecht zur Längsrichtung erstreckt und verschiebbar an dem vorderen Befestigungselement oder dem hinteren Montageelement befestigt ist.

12. Regalverwaltungssystem nach Anspruch 10 oder 11, wobei das hintere Montageelement (40) einen zweiten Griff (41) umfasst.

13. Regalverwaltungssystem nach einem der Ansprüche 1-12, wobei die Längserstreckung der mindestens einen Anschlagaussparung (74a, 74b, 75a, 75b) gleich oder etwas größer als die äußere Breite des Querschnitts des vorderen Befestigungsprofilelements (10) ist.

14. Regalverwaltungssystem nach einem der Ansprüche 1-13, wobei die Höhe der mindestens einen Anschlagaussparung (74a, 74b, 75a, 75b), die senkrecht zur Auflagefläche (73a, 73b) verläuft, im Wesentlichen gleich der äußeren Höhe des Querschnitts des vorderen Befestigungsprofilelements (10) ist.

15. Regalverwaltungssystem nach einem der Ansprüche 1-14, wobei das vordere Befestigungsprofilelement (10) einen ersten Kanal (14) und einen ersten Flansch (16) umfasst, die sich parallel zur Längsrichtung des vorderen Befestigungsprofilelements erstrecken und wobei das vordere Befestigungselement (30) einen zweiten Flansch (32), der in den ersten Kanal (14) einsetzbar ist, und einen zweiten Kanal (33) umfasst, der dazu angeordnet ist, den ersten Flansch (14) aufzunehmen, um die Zuführungsvorrichtung (20) am vorderen Befestigungsprofilelement (10) zu befestigen.

16. Regalverwaltungssystem nach Anspruch 15, wobei der erste Kanal (14) und der zweite Flansch (33) mit ineinandergreifenden Einkerbungen (15, 32a) versehen sind, um ein Verschieben der Zuführungsvorrichtung (20) entlang des vorderen Befestigungsprofilelements (10) zu verhindern, wenn die ersten und zweiten Kanäle und Flansche in gegenseitigem Eingriff stehen.

Revendications

1. Système de gestion de rayonnage comprenant un élément de profilé de fixation avant (10) conçu pour être fixé le long du bord avant d'un rayonnage (1) et au moins un dispositif d'alimentation (20), ledit dispositif d'alimentation comprenant :

- un support de produit (50) présentant une direction longitudinale s'étendant entre une extrémité avant et une extrémité arrière,
- un moyen d'alimentation de produit (60) déplaçable le long du support de produit et poussé dans la direction avant,
- au moins une paroi de séparation (70a, 70b) s'étendant parallèlement à ladite direction longitudinale,
- un élément de fixation avant (30) conçu pour engager l'élément de profilé de fixation avant (10) de façon libérable lorsqu'il est fixé le long du bord avant d'un rayonnage (1) pour la fixation libérable du moyen d'alimentation de produit à différentes positions le long de l'élément de profilé de fixation avant,
- au moins une surface de contrôle (73a, 73b) s'étendant vers l'arrière à partir de l'élément de fixation avant, parallèlement à la direction longitudinale du support de produit, et conçue pour faire face à la surface supérieure du rayonnage, dans lequel l'au moins une surface de contrôle (73a, 73b) est dotée d'au moins une cavité d'arrêt (74a, 74b, 75a, 75b, 76a, 76b),

caractérisé en ce que les dimensions de l'au moins une cavité d'arrêt (74a, 74b, 75a, 75b, 76a, 76b) sont configurées pour recevoir la section transversale de l'élément de profilé de fixation avant, ladite cavité d'arrêt étant positionnée à une distance derrière l'élément de fixation avant (30) et configurée pour recevoir une partie longitudinale de l'élément de fixation avant (10) afin d'empêcher un déplacement longitudinal du dispositif d'alimentation (20) lorsque l'élément de fixation avant (30) est hors d'engagement avec l'élément de profilé de fixation avant (10) et positionnée devant celui-ci.

2. Système de gestion de rayonnage selon la revendication 1, dans lequel au moins une cavité d'arrêt (74a, 74b) est disposée devant le centre longitudinal du support de produit (50).

3. Système de gestion de rayonnage selon la revendication 1 ou 2, comprenant une pluralité de cavité d'arrêt (74a, 74b, 75a, 75b, 76a, 76b) disposées successivement dans la direction longitudinale du support de produit (50).

4. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 3, comprenant une pluralité desdites surface de contrôle (73a, 73b) disposées côte à côte parallèlement à la direction longitudinale, chaque surface de contrôle étant dotée d'au moins une cavité d'arrêt (74a, 74b, 75a, 75b, 76a, 76b), dans lequel les cavité d'arrêt sont disposées en jeux, chaque jeu comprenant une cavité d'arrêt formée dans chaque surface de contrôle à égale distance longitudinale de l'extrémité avant du support de produit (50).

5. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 4, dans lequel la surface de contrôle (73a, 73b) est formée au niveau d'un bord de la paroi de séparation (70a, 70b) tourné vers le rayonnage.

6. Système de gestion de rayonnage selon la revendication 5, comprenant deux parois de séparation (70a, 70b) respectivement dotées d'une surface de contrôle (73a, 73b) .

7. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 6, dans lequel l'au moins une paroi de séparation (70a, 70b) est déplaçable de façon réglable dans une direction perpendiculaire à la direction longitudinale.

8. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 7, comprenant une première poignée (35) disposée au niveau de l'élément de fixation avant (30) ou à proximité de celui-ci.

9. Système de gestion de rayonnage selon la revendication 8, dans lequel la première poignée (35) est disposée au niveau d'une butée de produit avant (34) s'étendant vers le haut à partir de l'élément de fixation avant (30) .

10. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 9, dans lequel le support de produit (50) comprend au moins deux tiges (51) s'étendant longitudinalement à partir de l'élément de fixation avant (30) vers un élément de montage arrière (40) .

11. Système de gestion de rayonnage selon la revendication 10, dans lequel l'au moins une paroi de séparation (70a, 70b) comprend des tiges de montage (72a, 72b), chaque tige de montage s'étendant perpendiculairement à la direction longitudinale et étant fixée de façon déplaçable à l'élément de fixation avant ou à l'élément de montage arrière.

12. Système de gestion de rayonnage selon la revendication 10 ou 11, dans lequel l'élément de montage arrière (40) comprend une deuxième poignée (41).

13. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 12, dans lequel l'extension longitudinale de l'au moins une cavité d'arrêt (74a, 74b, 75a, 75b) est égale ou légèrement plus grande que la largeur extérieure de la section transversale de l'élément de profilé de fixation avant (10).

14. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 13, dans lequel la hauteur de l'au moins une cavité d'arrêt (74a, 74b, 75a, 75b) perpendiculairement à la surface de support (73a, 73b) est essentiellement égale à la hauteur extérieure de la section transversale de l'élément de profilé de fixation avant (10).

15. Système de gestion de rayonnage selon l'une quelconque des revendications 1 à 14, dans lequel l'élément de profilé de fixation avant (10) comprend un premier canal (14) et un premier rebord (16), lequel s'étend parallèlement à la direction longitudinale de l'élément de profilé de fixation avant, et dans lequel l'élément de fixation avant (30) comprend un deuxième rebord (32) apte à être inséré dans le premier canal (14) et un deuxième canal (33) conçu pour recevoir le premier rebord (14) pour la fixation du dispositif d'alimentation (20) à l'élément de profilé de fixation avant (10).

16. Système de gestion de rayonnage selon la revendication 15, dans lequel le premier canal (14) et le deuxième rebord (33) sont dotés de dents d'engagement mutuel (15, 32a) destinées à empêcher un déplacement du dispositif d'alimentation (20) le long de l'élément de profilé de fixation avant (10) lorsque les premier et deuxième canaux et rebords sont en engagement mutuel.

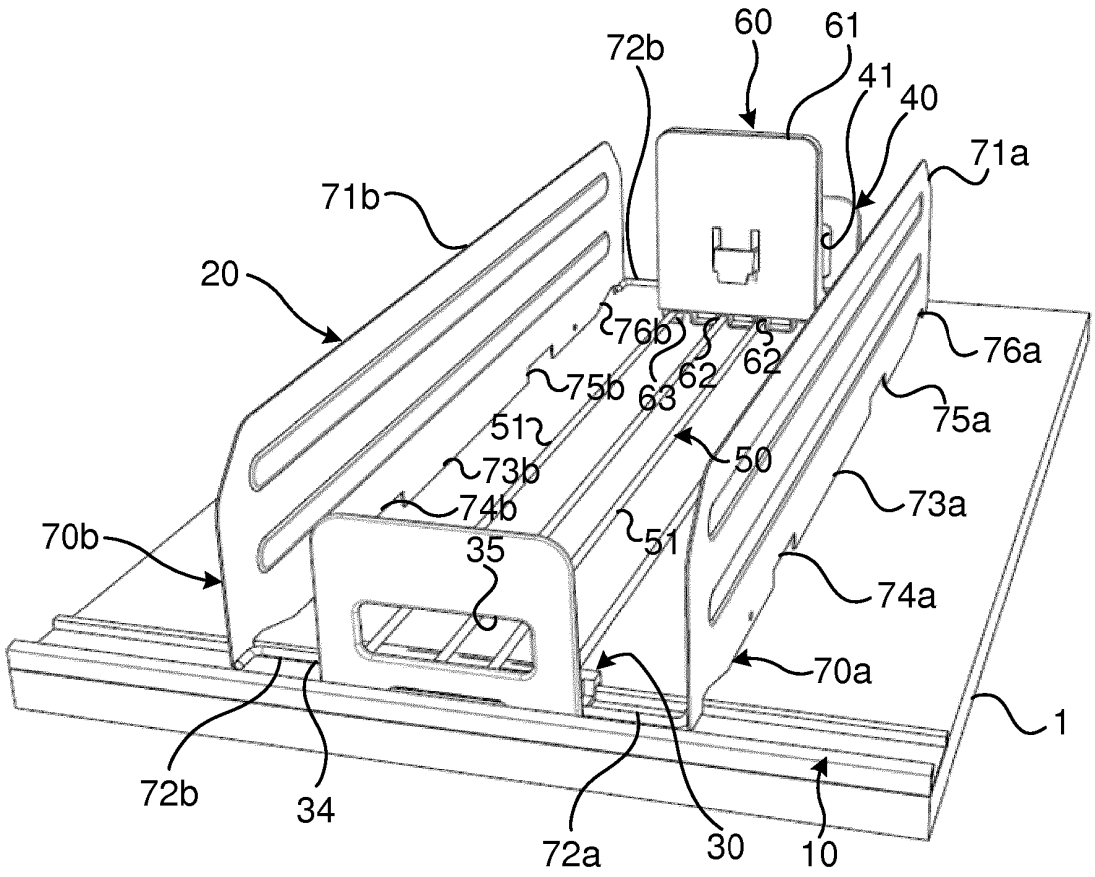
60
61
72b
41
40
71a
71b
20
76b
62
62
76a
75b
63
75a
51
50
73b
73a
74b
51
70b
35
74a
70a
1
72b
34
72a
30
10

Fig. 1

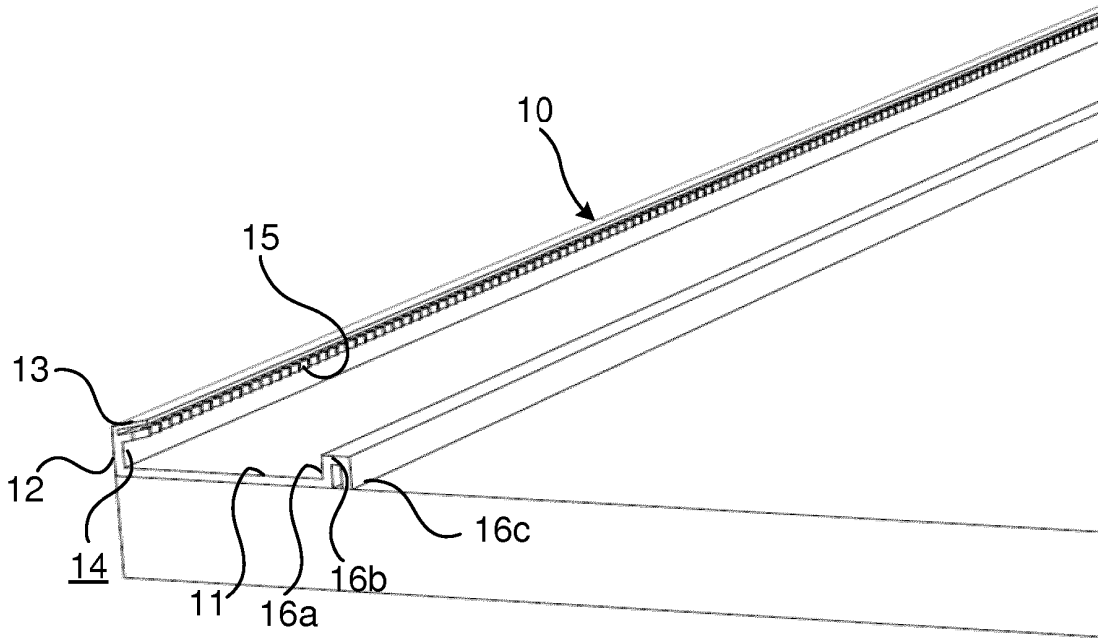
10
15
13
12
14
11
16a
16b
16c

Fig. 2

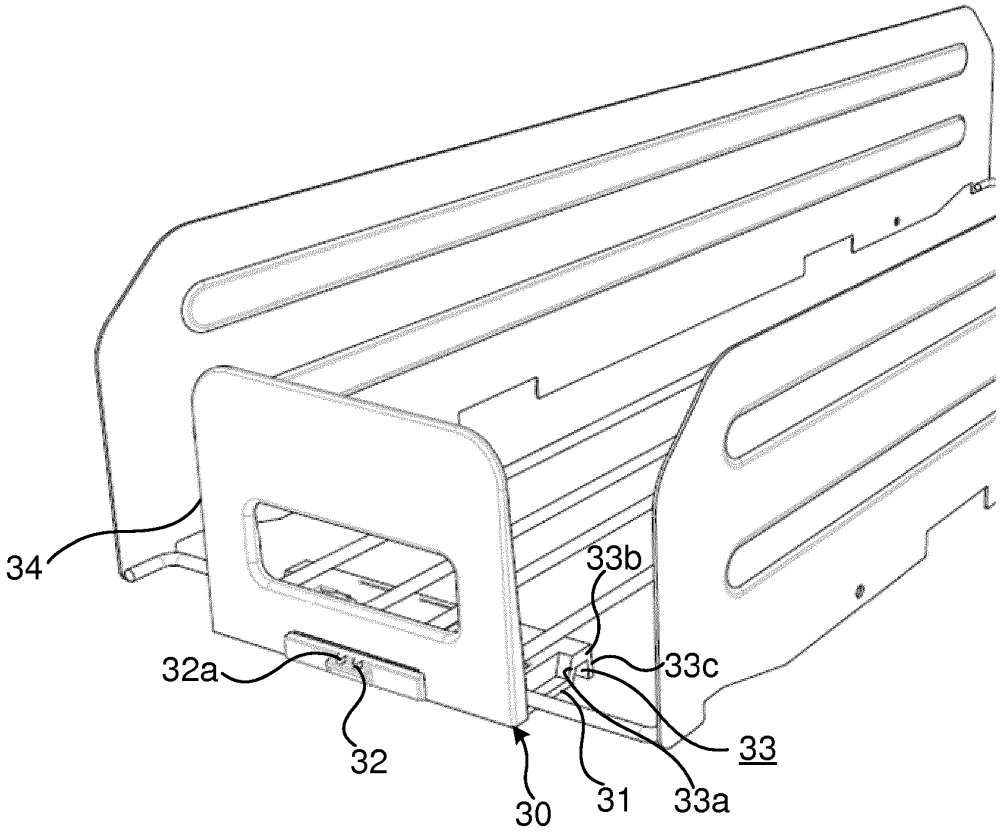

Fig. 3a

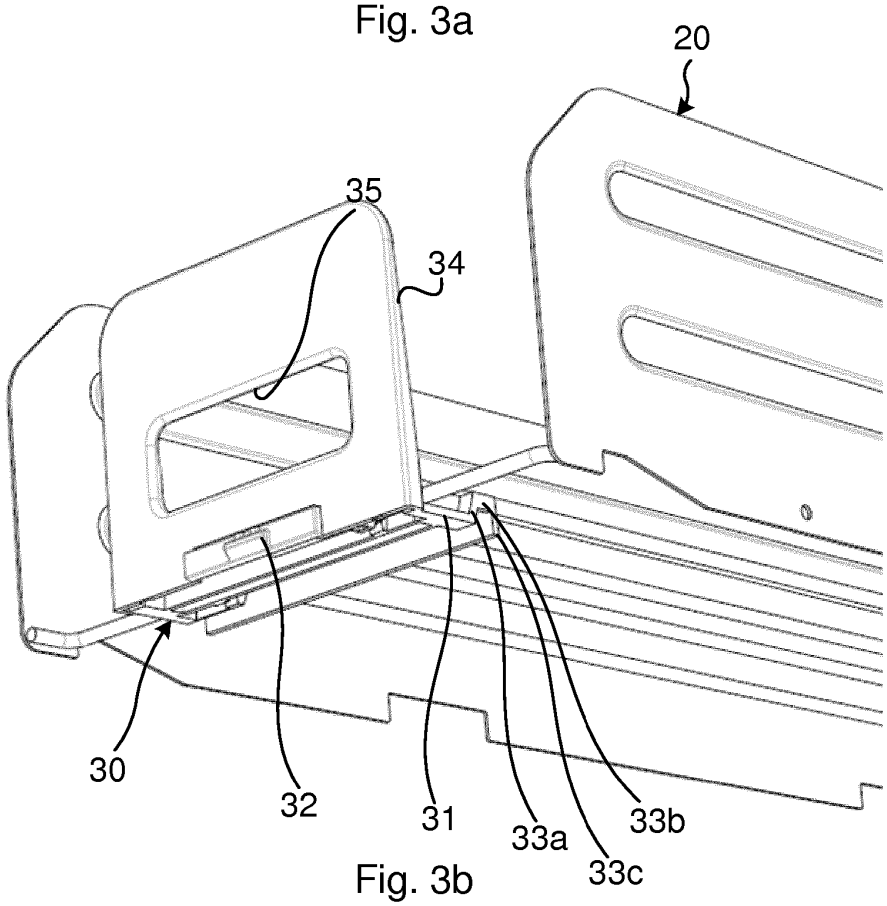

Fig. 3b

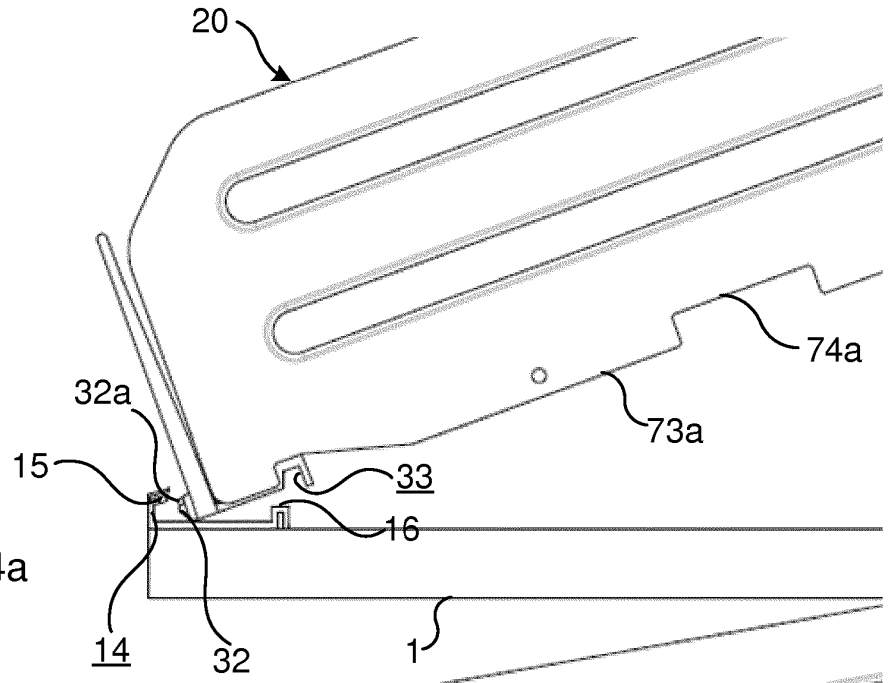

Fig. 4a

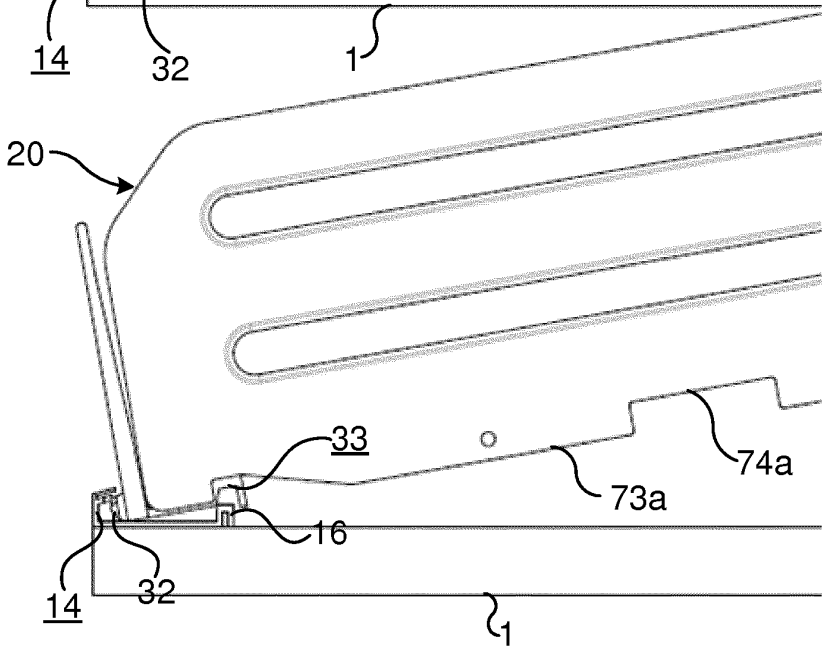

Fig. 4b

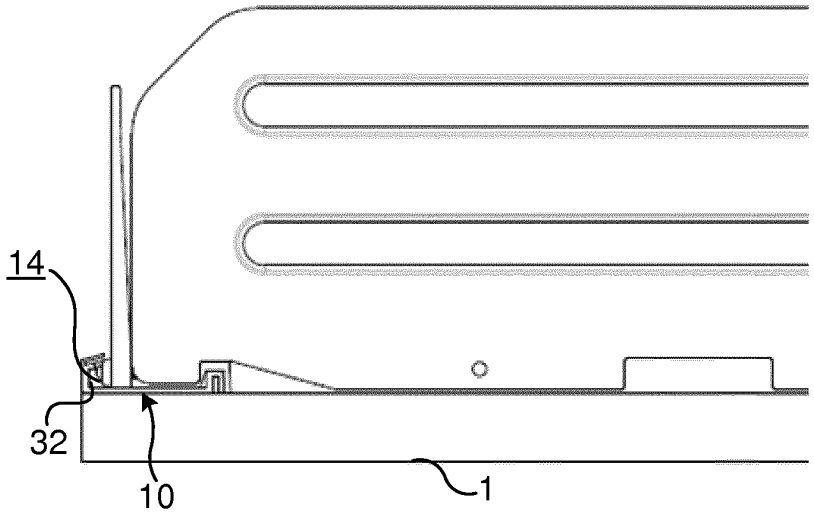

Fig. 4c

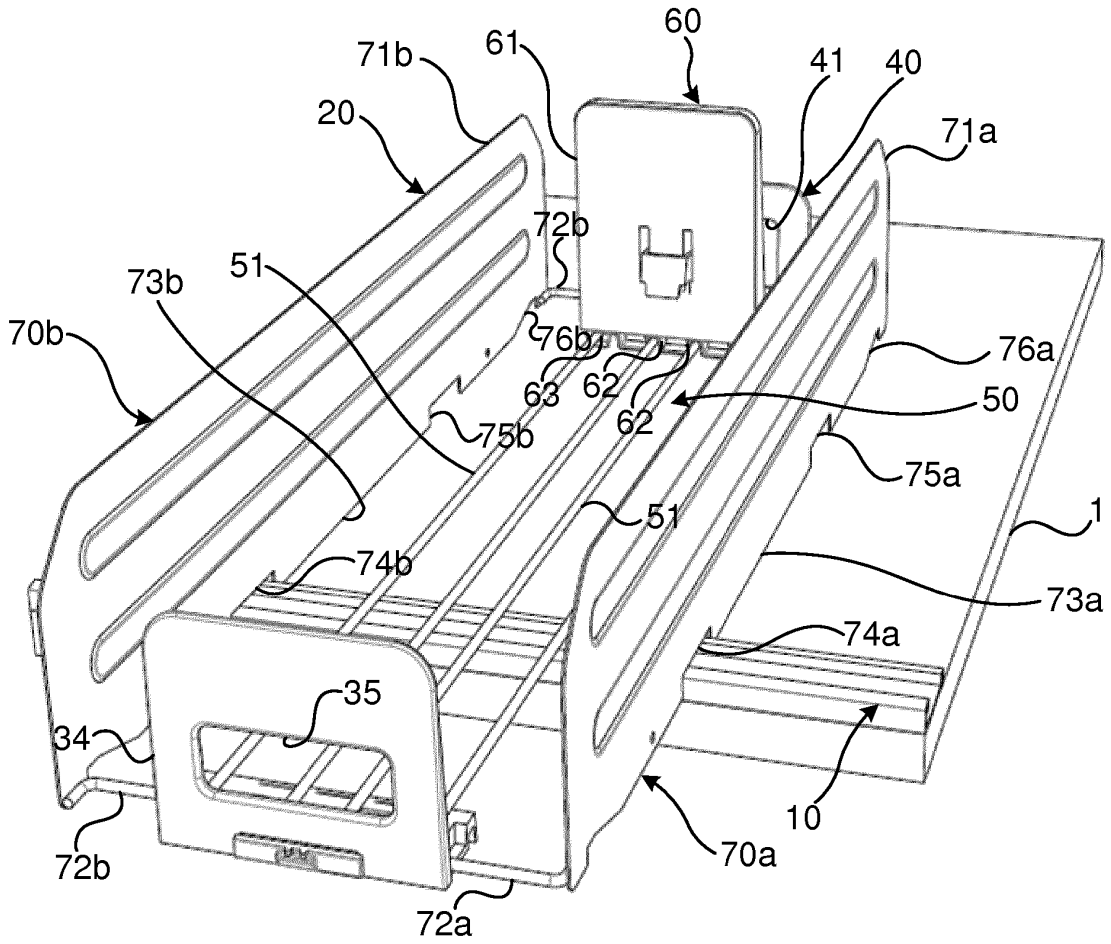

Fig. 5a

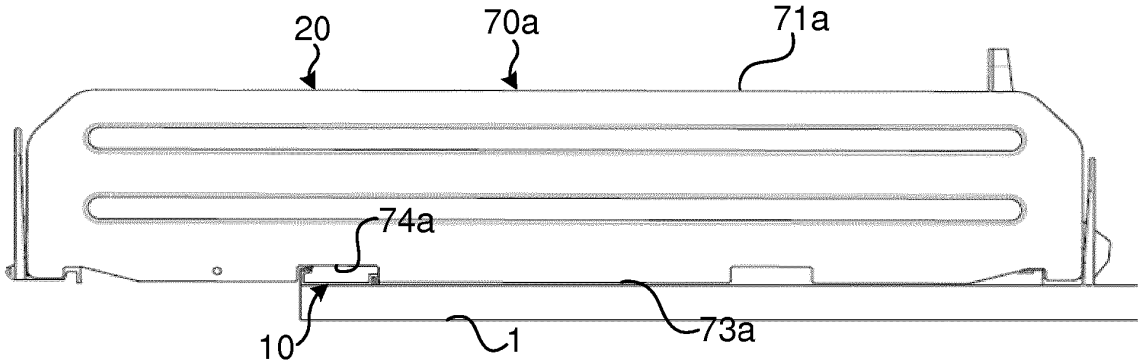

Fig. 5b

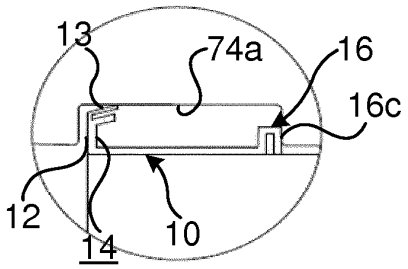

Fig. 5c

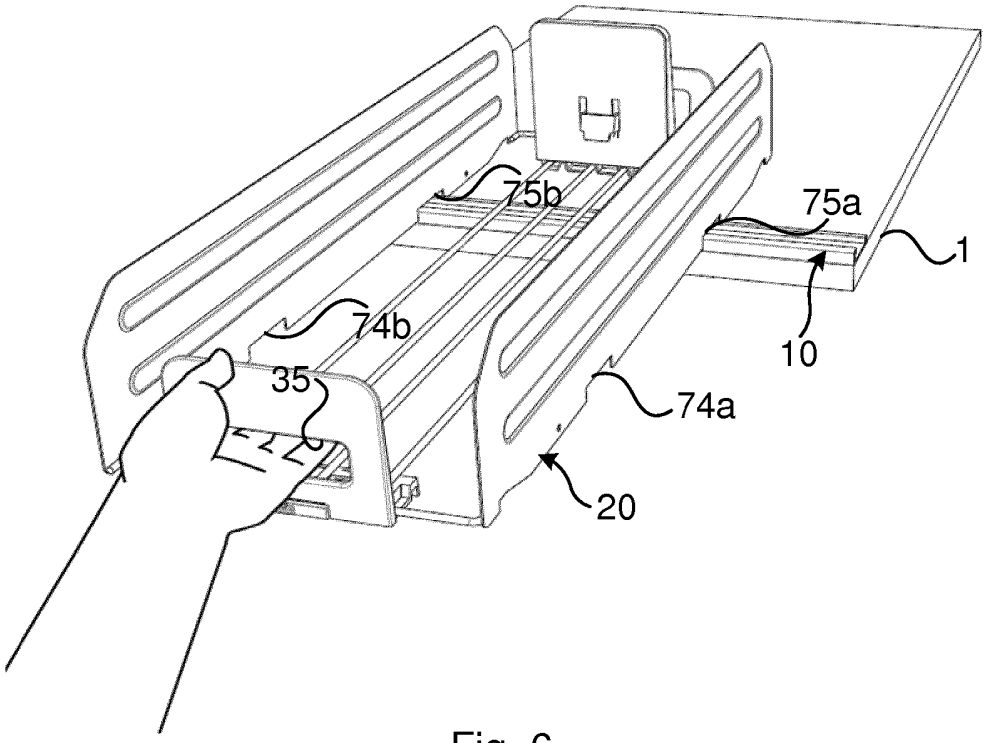

Fig. 6

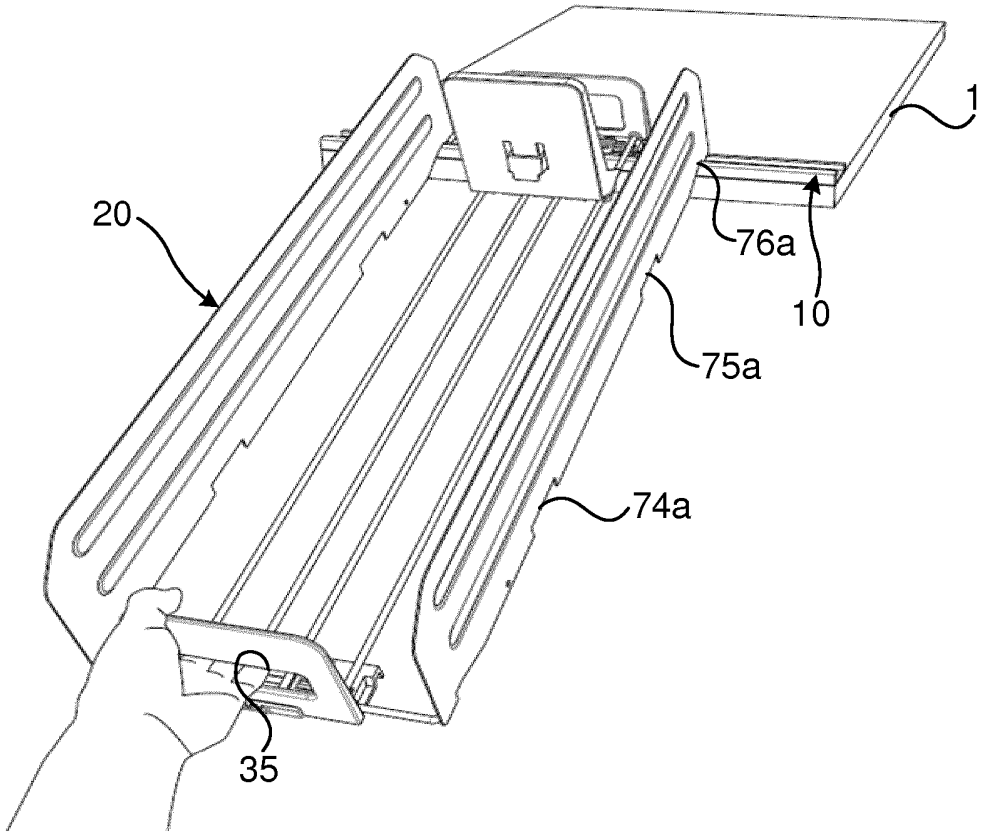

Fig. 7a

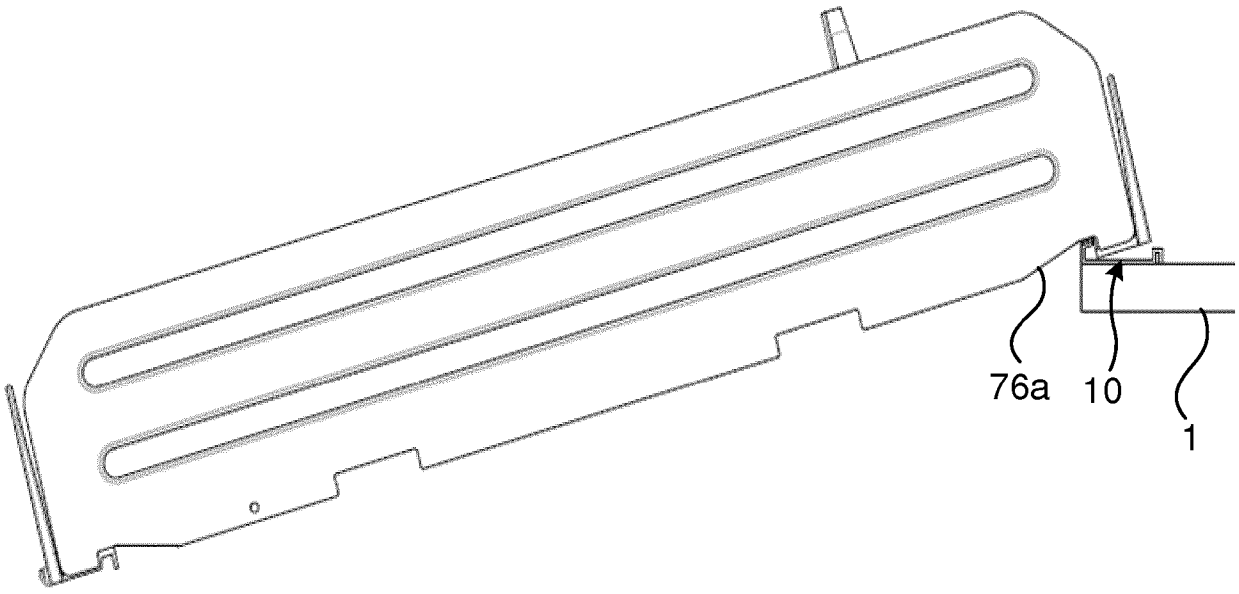

Fig. 7b

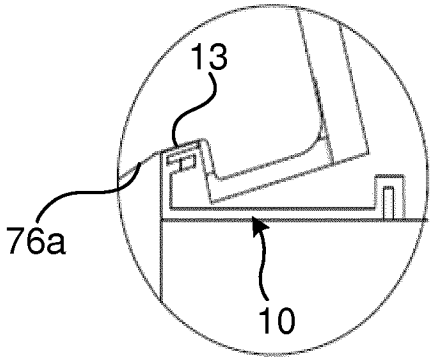

Fig. 7c

REFERENCES CITED IN THE DESCRIPTION

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