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(54) SYSTEM AND FIXING DEVICE FOR FIXING SHELF ACCESSORIES TO A SHELF

SYSTEM UND BEFESTIGUNGSVORRICHTUNG ZUR BEFESTIGUNG VON REGALZUBEHÖR AN EINEM REGAL

SYSTÈME ET DISPOSITIF DE FIXATION PERMETTANT DE FIXER DES ACCESSOIRES D'ÉTAGÈRE SUR UNE ÉTAGÈRE

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Description

Field of invention

[0001] The present invention relates to a system of the kind defined in the preamble of claim 1, for releasably fixing accessories to a shelf. The invention also relates to a fixing device for such a system, and also to a shelf equipped with such a fixing device.

[0002] The shelf accessories may be of different kinds, such as for instance shelf dividers, pusher devices, holders for information carriers, trays, etc.

Background of the invention

[0003] 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 a number of different accessories, such as shelf dividers, different types of devices for pushing the goods and different types of trays, etc. Such accessories are often mounted on the upper surface of the shelf.

[0004] 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.

[0005] 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.

[0006] 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.

[0007] 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.

[0008] 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.

[0009] The accessories should preferably also be held firmly, such as to ensure that they will not topple. While ensuring that the accessories are held securely, it is also important that the means for holding the accessories fixated will enable the accessories to be readily fastened and readily removed.

[0010] It is also desirable that the means for fixating the accessories will have an aesthetic appearance, and will not be an unnecessary obstacle to placing or removing goods on and from the shelf or from adjacent shelves.

[0011] It is also important that the accessory holding means are of simple construction and can be produced and mounted inexpensively.

[0012] It is also desirable that the means for securely holding accessories to a shelf can be applied to existing shelves without requiring the shelves to be replaced or modified in some way.

[0013] Another desired property is one of enabling simultaneously a plurality of accessories to be fixed to the shelf and removed therefrom respectively, readily by hand. A system which allows several accessories to be fixed and released simultaneously can be used, for instance, in setting up shelf dividers on a new shelf or in reorganizing the whole of the shelf or a larger part thereof. In setting up shelf dividers on an empty shelf, the shelf dividers are normally placed in roughly estimated positions along the shelf with respect to the goods to be placed thereon. The person responsible for setting up the shelf dividers will normally start at one end of the shelf and work along the shelf towards its other end. When arriving at this other end of the shelf it may become apparent that there is not sufficient room to place a last shelf divider. All of the earlier placed shelf dividers must then be adjusted by displacing the shelf dividers somewhat in either direction so as to provide room for the last shelf divider or in order to fill out the earlier occurring free end of the shelf. In respect of the work involved in making this adjustment it is highly beneficial when the shelf dividers are not fixed to the shelf, so as to avoid the necessity of loosening and re-fastening the dividers. When all of the shelf dividers have been finally positioned it is desirable that all dividers can be fixed simultaneously in their respective positions readily by hand. This will readily ensure that none of the dividers will topple or be displaced or loosened from their respective intended positions while fixating the dividers or when subsequently placing goods on the shelf.

[0014] Even when the shelf is placed in order and the shelf dividers are placed in their respective positions, it is sometimes necessary to reorganize the shelf, requiring one or more of the shelf dividers to be moved, removed or fixed in position. For example, this is the case when the spacing between two shelf dividers must be adjusted so as to accommodate a new goods item or goods package of other dimensions. In addition, it may often be desirable to subsequently fasten other accessories, such

as information carriers, for instance flag holders or coupon holders on a shelf that has earlier been set-up, for instance in response to an advertising campaign. In order to facilitate such reorganization of parts of a shelf that has already been set up, it is therefore desirable that individual accessories can be removed and then replaced in a new position so that other accessories can be fastened without releasing the remaining shelf dividers.

Prior art techniques

[0015] WO2004/112549 describes a system for fixing accessories to a shelf. The system comprises an accessory which includes a foot and a channel element that has an upwardly open channel. The channel element is formed from extruded aluminium and is fastened to the front edge of the shelf such as to extend along the shelf. A fixing device, for instance in the form of an elongate leaf spring, is disposed in the channel. The system includes a manoeuvring device which enables the fixing device to be adjusted from outside the channel between a fixing position in which the feet of respective accessories accommodated in the channel are fixed and a release position in which the feet of respective accessories are released.

[0016] WO2005/025386 describes a similar system that comprises a channel element formed by extruded aluminium and having an outwardly open channel which is fastened to the front edge of the shelf for accommodating the feet of respective accessories. An elongate fixing device that has an outwardly open and axially extending groove is provided in the channel and can be adjusted between a fixing position and a release position. This system differs from the known system described above by virtue of the fact that the fixing device can be adjusted between its respective positions by manipulating one of the accessories accommodated in the channel element.

[0017] Both of the known systems described above thus enable all accessories accommodated in the channel to be readily simultaneously fixed and released respectively by hand. The systems also allow subsequent adjustments of the accessories to be readily achieved when the accessories are located in the channel element and the fixing device is in its release position.

[0018] The design of the systems with an upwardly open channel in which the feet or corresponding engagement parts of the accessories are accommodated ensures that the accessories will be held stably in their fixed positions and that the accessories will stand relatively firmly on the shelf even in the release position, so as to facilitate subsequent adjustment of the accessories. Fastening of the accessories in the channel elements disposed at the front end of the shelf also enables the systems to be formed in the absence of parts that project up from the shelving, if so desired.

Summary of the invention

[0019] One object of the present invention is to provide a system for releasably fixing shelf accessories to a shelf that is able to fixate the accessories in a simple, inexpensive and reliable fashion.

[0020] Another object of the invention is to provide such a system with which the dimensions of the system components disposed on the shelf can be made relatively small so as to reduce the extent to which the system projects out from the shelf.

[0021] Another object is to provide such a system which will enable accessories to be held firmly to the shelves without the system components needing to be subjected to large forces or stresses.

[0022] These and other objects of the invention are achieved with a fixing device of the kind defined in the preamble of claim 1 and having the features set forth in the characterising clause of the claim.

[0023] The accessories and the fixating device of the inventive system thus comprise co-acting engagement parts which in the fixing position are in engagement with one another when fitted. One of these engagement parts includes a deformable element which when the engagement parts are mutually engaged is pressed against the other engagement part. As a result, the deformable element is deformed when the engagement parts are in the fixing position, wherewith the surface with which the deformable element comes into abutment with said other engagement part increases during its deformation. The deformable element remains in its deformed state in the fixing position, so that the abutment surface will remain large. The increased abutment surface increases the frictional force which is generated between the deformable element and the other engagement part when these move relative to each other. In the fixing mode of the system, the accessories are fixed more positively as a result of this greater degree of friction thus achieved between the engagement parts.

[0024] The increased abutment surface can also be used to allow a reduction in the force with which the engagement parts need to be pressed towards each other in order to provide a sufficiently firm fixture. This reduces the material tensions that occur in the system components, thereby enabling these components to be made weaker. The deformable element according to the invention thus enables the force absorbing parts of the system to be given smaller dimensions, thereby reducing material consumption and lowering manufacturing costs. In addition, it enables primarily the fixing device to be made smaller, so that it will only project slightly from the shelf to which it is fitted.

[0025] The deformable element is suitably designed so that it will at least partially surround the second engagement part when in the fixating position. Fixing of the accessory will be further reinforced in this way, by a mechanical latching effect. In order to obtain relative movement between the two engagement parts it is not only

necessary to overcome the frictional force mentioned above but also to apply energy that will overcome the embracing deformation of the deformable element.

[0026] By giving the deformable element the form of an elongate strip-like element which in a fixing state is bent sideways along the longitudinal section of the element that abuts the second engagement part there can be obtained a large increase in the abutment surface in relation to the deformation of the deformable element. This design of the deformable element is also suitable in achieving an embracing deformation that further counteracts relative displacement of the engagement parts in the longitudinal direction of the strip-like element.

[0027] In order to obtain effective fixation through the medium of embracement, the deformable element is suitably given a Shore hardness which allows its shape to conform closely to that of the second engagement part.

[0028] The fixing device is suitably constructed with its engagement part disposed on the movable fixing element of the fixing device, said fixing element being pivotally arranged along an elongated channel element which includes an axially extending channel for accommodating the engagement parts of the accessory. The deformable element is then suitably provided on the second engagement part. This enables stable fixation to be achieved in the fixing position of the device and also ensures that the accessory will stand relatively firmly on the shelf, even in the release position, so as to facilitate subsequent adjustment of an accessory. This enables the system to be constructed in the absence of parts that project above the shelf plane if so desired.

[0029] It is preferred that the accessory fixing device has the form of a single-piece profiled element, so as to provide a simple and inexpensive method of manufacture.

[0030] In order to enable accessories to be fixed to and removed from the fixing device more easily, the movable fixing element is conveniently provided with a projection which is configured to abut the engagement parts of respective accessories in the release position such as to releasably maintain the fixing element in the release position. It is possible with this design to produce a snapping sound which clearly denotes that the fixing element has taken its release position.

[0031] The invention also relates to a fixing device for such a system and a shelf including such a fixing device.

[0032] Further objects and properties of the system and the fixing device according to the present invention will be apparent from the following detailed description and from the accompanying claims.

Brief description of the drawings

[0033] The present invention will now be described with reference to various embodiments thereof and also with reference to the accompanying drawings, in which

Fig. 1 is a perspective view of a shelf on which three different accessories have been mounted with the aid of an accessory fixing device according to a first embodiment of the invention.

Fig. 2a and 2b are side views of a second embodiment of the system with an accessory shown only partially, wherewith figure 2a shows the system in an accessory release mode and figure 2b shows the system in an accessory fixing mode.

Fig. 3a, 3b and 3c are respectively perspective views obliquely from the rear, a side view and a pan view from beneath, showing a part of an accessory that can be used together with the accessory fixing device shown in figure 1.

Fig. 4a, 4b, 4c illustrate schematically details of the system. Figure 4a is a perspective view seen from above/from the rear of a part of the accessory and the accessory fixing device. Figure 4b is a view from above of the accessory and the fixing device shown in figure 4a. Figure 4c is an enlarged sectional view taken on the line A-A in figure 4b.

Detailed description of embodiments

[0034] There have been used in the following description directional and positional designations, such as up, down, forwards, rearwards, over, under, in front of, behind, upper, lower, front and rear. These designations relate to directions and positions of a horizontal shelf or details when fixed to such a shelf. By the front edge of a shelf is meant that edge of the shelf which faces towards a person in normal use of the shelf. The designations are used to provide greater clarity to this description and shall not be considered to limit the protective scope of the claimed invention.

[0035] Figure 1 shows a front part of a typical store shelf 1 that has an upper shelf surface la and a front edge 1b. A system according to a first embodiment of the invention is disposed at the shelf 1. The system includes a fixing device 2 which is fastened to the shelf surface la with the aid of double-sided adhesive tape 3 such that part of the fixing device will project down immediately in front of the front edge 1b of the shelf. Included in the system are three shelf accessories in the form of two shelf dividers 5 and a pusher device 6, these accessories being fixed to the shelf with the aid of the fixing device 2 as described below in more detail. At least the shelf dividers 5 have to this end a foot that includes an engagement part as described in more detail below with reference to figures 4a-4c.

[0036] Figures 2 and 2b illustrate a fixing device 2 which differs slightly from the device illustrated in figure 1. Figures 2a and 2b also illustrate a forward lower part of one of the shelf dividers 5 shown in figure 1. The fixing device 2 illustrated in figures 2a and 2b is comprised of an integrated profiled element which is produced in one

piece by the co-extrusion of two different polymer materials. The fixing device 2 can thus be produced very readily and at low cost. The construction provides, at the same time, a high degree of freedom with respect to the design of the fixing device 2, so as to provide an aesthetically attractive design which will conform to the shelf to which it shall be fastened and to other goods presentations and furnishing details. The extruded profiled element can be cut into lengths that correspond to different standard shelves, for instance in length of 600, 900, 1200 and 1330mm. If the system is applied to shelves of other lengths, the fixating device is simply sawn in situ with the aid of a saw or a hacksaw. As will be understood lengths which differ from standard lengths may also be provided in the manufacturing process.

[0037] The fixing device 2 includes a channel element 10 and a fixing element 20. The channel element 10 includes a mounting section 11 and a part 12 that projects down from the surface la of the shelf. The mounting section 11 is intended to lie in abutment with the shelf surface 1a via the intermediate double-sided adhesive tape 3 (figure 1). The fixating device may, alternatively, be secured to the shelf with the aid of screws or other fasteners with the mounting section lying directly against the shelf surface.

[0038] The downwardly projecting part 12 has a generally U-shaped cross-section, comprising a rear leg 12a and a front leg 12b which define an outwardly open channel 13 therebetween. An upper rear flange 14 projects obliquely out through a short distance in a forwardly and upwardly direction, at the upper end of the rear leg 12a. An upper front flange 15 projects out rearwardly through a short distance at the upper end of the front leg 12b. A rear upper engagement flange 16 and a front lower engagement flange 17 project respectively into the channel 13 from the rear leg 12a and the front leg 12b. A first latching flange 18 is provided on the outer surface of the downwardly projecting part 12, slightly in front of the bottom of said part.

[0039] The fixing element 20 includes a first engagement part in the form of a deformable element 21 and a manoeuvring arm 22. The deformable element 21 is comprised of an elongate strip-like element that extends in the length direction of the fixing device 2 and which is joined to the fixing element 20 along one side edge thereof. The deformable element 21 is comprised of a resilient polymer material that has a relatively low Shore-number and a high coefficient of friction, this material having been co-extruded with the polymer material that forms the remainder of the fixating device 2.

[0040] The manoeuvring arm 22 is formed by a generally J-shaped part 22a and a part 22b that projects out at right angles to the channel element 10. A second latching flange 23 projects out towards the channel element 10 from the lower tip of the J-shaped part 22a. A gripping flange 24 also projects out from the lower part of the J-shaped part 22a in a direction away from the channel element 10.

[0041] The fixing element 20 is connected to the channel element 10 by means of a hinge 30 that forms an axle which extends longitudinally along the fixing device and which allows the fixing element 20 to be rotated relative to the channel element 10. In the case of the illustrated embodiment, the hinge is comprised of a relatively thin bridge of the same material as that from which the channel element 10 and the fixing device 20 are made, with the exception of the deformable element 21. However, the hinge may alternatively be formed from some other flexible material that is co-extruded with the other materials included in the accessory fixing system.

[0042] The fixing device 2 illustrated in figures 2a and 2b differs from that illustrated in figure 1 by virtue of a longitudinally extending projection 27 which projects from the deformable element 21 and which is provided on the outwardly projecting part 22b of the fixing device 20.

[0043] The fixing device of the embodiment illustrated in figures 1, 2a and 2b also includes a front profiled section 25, 26 which forms an engagement profile for securing further accessories, such as label holders or flag holders (not shown). The front profiled section includes an upper hook-shaped projection 25 and a lower forwardly arched portion 26 that has a lower rounding whose radius of curvature is smaller than that of the arched portion. The hook-shaped projection 25 and the arched portion 26 extend out from the J-shaped portion 22a of the manoeuvring arm 22 in a direction away from the channel element 10 and are formed integrally as a one-piece structure with the remainder of the fixing device 2.

[0044] Figures 3a-c illustrate an example of an accessory that is included in the system according to the invention. The figures show the front portion of a shelf divider 5, although it will be understood that other accessories may be included in the system. The shelf divider 5 includes a dividing wall 51 and a front plate 52 whose lower part forms an engagement part 53 which is intended to be received by and affixed in the fixing device 2 (see figure 1). In order to achieve effective stability when the shelf divider is placed on the shelf, the engagement part 53 includes a portion that has a given extension parallel with the longitudinal direction of the fixing device below that part of the accessory that is placed on the shelf surface.

[0045] The engagement part 53 also includes a front surface 54 which is generally vertical, and a lower portion which tapers downwardly to form a tip 55 that includes draughts or clearances 55a in the sides of the engagement part 53. Slightly above the bottom tip 55 there extends rearwardly an upper horizontal flange 56 that has a generally constant cross-section over the full width of the engagement part 53. There is provided in the engagement part 53 a rearwardly open aperture 57 of round cross-section beneath the upper flange 56. A beak-like projection 58 extends rearwardly beneath the aperture 57. The beak-like projection 58 includes laterally facing and downwardly facing clearances 58a and 58b in the

engagement part 53. Figures 2a and 2b illustrate how the shelf dividers 5 shown in figures 3a-c can be affixed to a shelf (not shown in figures 2a-b) and released with the aid of a fixing device 2.

[0046] Figure 2a shows the fixing device in its release mode. The fixing element 20 has herewith been rotated anticlockwise about the hinge 30, wherewith the projection 27 has come into contact with the engagement part 23 of the shelf divider. During this rotation, the projection 27 has moved around a generally circular arc whose centre is located at the location at which the hinge 30 is fastened in the channel element 12. During said movement, the tip of the projection 27 passes through a maximum distance in a direction towards the engagement part 53 of the shelf divider and is thereafter under pressing abutment with the engagement part 53 snapped into the position shown in figure 2a. The flexibility of the hinge 30 enables the hinge to pass during this rotation from a state in which it bulges out towards the engagement part to the state shown in figure 2 in which it bulges away from the engagement part. This bistable transition of the hinge 30 also contributes to the snap-in action with which the projection 27 takes the position shown in figure 2a in which the fixing element 20 is kept in the release position. When the projection snaps into this position, the hook-shaped projection 25 of the fixing element 20 strikes against the front plate 52 of the shelf divider, therewith giving rise to a sound that indicates that the fixing element has taken the correct release position. As a result of this snap-in action with several accessories disposed along the fixing device 20 the fixing element is maintained in its release position along its entire length. This is particularly beneficial since it allows the fixing element 20 to be formed from a material that has a relatively small rigidity and can also be readily caused to take and be retained in a distinct release position so as to enable accessories to be positioned, removed and displaced along the full length of the fixing device 2. In this position of the fixing element 20 it is possible to insert the engagement parts 53 of a desired number of accessories 5, 6 to be inserted into the channel 13 of the channel element 10.

[0047] The tip 55 of the engagement part 53 and the lower clearance 58b on the beak-like projection 58 allows the tip 55 and the projection 58 to pass the rear upper engagement flange 16 of the channel element 10 and take the position shown in figure 2a. In this position, the rear upper flange 6 is in engagement with the aperture 57 in the engagement part 53 between the flange 56 and the projection 58, at the same time as the lower front engagement flange 17 of the channel element lies against the tip 55 below the front vertical surface 54 of the engagement part. This engagement between the engagement flanges 16, 17 of the channel element and the engagement part 53 of the accessory ensures that the accessory will stand relatively firmly on the shelf while, at the same time, enabling the accessory to be easily displaced along the shelf in the longitudinal direction of the fixing device 2.

[0048] When all accessories have been moved into the fixing device in the manner described above and adjusted to desired positions in the longitudinal direction of the shelf, all of the accessories are fixed simultaneously by turning the fixing element 20 clockwise to the position shown in 2b. During this rotation, the projection 27 snaps back past the engagement part 53 of the shelf divider. The free longitudinal edge of the deformable element 21 moves rearwardly and upwardly in a circular arc and comes into contact with the engagement part 53. During this rotation, movement of the deformable element 27 gives rise to a force which as a result of the abutment of the deformable element 27 with the engagement part 53 presses the engagement part in a rearward direction. This results in tensions forces that act along three contact lines of the engagement part 53 in the fixing device 2. This tensioning effect is caused by the abutment of the deformable element 21, the upper rear flange 16 and the lower front flange 17 with the corresponding parts 54, 57, 55 of the engagement part. The accessory 5 is fixed firmly to the shelf in this way, such that the accessory cannot be lifted or toppled even if relatively large forces are applied to the accessory.

[0049] As will be evident from figure 2b and figures 4a-c, the deformable element 21 is deformed when it is pressed into abutment with the engagement part 53 of the accessory. As illustrated schematically in figure 2b and figure 4c, that part of the deformable element 21 that lies against the engagement part 53 is bent down. As a result, the contact surface between these two parts is increased, which enhances the friction there between. As will best be seen from figure 4a and figure 4b, deformation of the deformable element 21 also causes the element to embrace a part of both side surfaces of the engagement parts. Expressed differently, a front part of the engagement part 53 is contained in a deformed area of the deformable element. This also results in mechanical fixture of the engagement part 53 that counteracts displacement of said part in the longitudinal direction of the fixing device 2. In order to displace the engagement part 53 and therewith the accessory 5 there is required in addition to the application of energy in overcoming the friction also the application of energy that results in deformation of the deformable element in order to overcome said mechanical fixation of the accessory.

[0050] The deformable element 21 is also given a relatively high coefficient of friction which further contributes to effective fixation of the engagement part 53 in the fixing device 2.

[0051] When the fixing element 20 is rotated to its fixing position, the second latching flange 23 on the fixing element 20 will move into engagement with the first latching flange 18 on the channel element 10. This will result in releasable latching of the fixing element 20 in the fixing position along the full length of the fixing device. This is particularly favourable, since it enables the fixing element 20 to be formed from a material of relatively small stiffness and nevertheless readily be caused to take and be

retained in a distinct fixing position, so as to achieve stable fixation of accessories along the full length of the fixing device 2.

[0052] Removal of the accessories is achieved by rotating the fixing element anticlockwise back to the release position shown in figure 2a. The accessories 5 can then be readily plucked from the fixing device 2, by turning the accessories slightly about a horizontal axis that is perpendicular to the longitudinal direction of the fixing device. The clearances 58a, 58b (see figure 3a) on the beak-like projection 58 and the downwardly tapering tip allow the engagement part 53 to be rotated out of its relatively loosely held engagement with the engagement flanges 16, 17 of the channel element 10.

[0053] The afore-described adjustments of the fixing device 2 between said releasing and fixing positions are readily achieved by gripping the gripping flange 24 on the manoeuvring arm 22 of the fixing element 20. Because the distance of the gripping flange 24 from the hinge 30 is much greater than the distance of the abutment part 21 from said hinge 30 there is obtained a transmission that enables the fixing element to be brought to and from a fixing position with a relatively small finger-applied force even when the abutment part 21 in the fixing position lies against the engagement part 53 with a high abutment force.

[0054] The embodiments of the fixing device 2 illustrated in figures 1, 2a and 2b include an integrated front profile section 25, 26 which forms a so-called mother profile. This mother profile can be used for fixing label holders for instance, such as label pockets and flag holders. The fixing device thus forms an integrated single-piece device which in addition to fixing the shelf accessories such as shelf dividers, trays and advancing devices on top of a shelf is also able to fix other accessories, such as label holders and flag holders which are placed at or in front of the front edge of the shelf where they can be clearly seen.

[0055] Although the invention has been described above with reference to exemplifying embodiments of the invention it will be understood that the invention is not restricted to these embodiments and that modifications and variations can be freely made within the scope of the followings claims. For instance, it is possible to place the deformable element on the engagement parts of the accessory instead of on the fixing device. The mutually co-acting engagement parts of the fixing device and the accessory may also be designed in various different ways. In the illustrated examples, the fixing device that includes the channel has the form of a female element for receiving the engagements parts of the accessory in the form of male elements. It will be understood, however, that the reverse is possible, where the accessory includes female elements for accommodating male elements provided on the fixing device, wherewith the deformable element may be provided on engagement parts that are provided either on the female elements of the accessory or on the male elements of the fixing device.

Claims

1. A system for releasably fixing shelf accessories to a shelf (1), wherein the system comprises

   - a number of shelf accessories (5, 6) each of which includes a first engagement part (53), and
   - a fixing device (2) which includes an elongate profiled element that includes at least one second engagement part which is designed for co-acting engagement with the first engagement parts of the number of shelf accessories, wherein the fixing device is intended to be fastened along the front edge of a shelf and includes a movable fixing element (20) which is bistably, pivotally adjustable, over its entire length, between a fixing position in which the first engagement parts of the number of shelf accessories in co-action with the second engagement part are affixed to the profile element and a release position in which the first engagement parts are released, for allowing simultaneous fixing and releasing respectively of the number of shelf accessories, **characterized in that** the first engagement parts (53) or the second engagement part includes a resiliently deformable element (21) which is designed so that in the fixing position under abutment with the second engagement part or the first engagement parts respectively takes a deformed state such as to increase the abutment surface between the co-acting engagement parts.

2. A system according to claim 1 in which the deformable element (21) is configured to at least partially surround the engagement part or engagements parts (53) with which it abuts in said fixing position.

3. A system according to any one of claims 1 or 2 in which the deformable element (21) has the form of an elongate strip-like element which in said fixing position is bent sideways along the longitudinal section of the element that lies in abutment with the second engagement part or the first engagement parts (53) respectively.

4. A system according to any one of claims 1-3 in which the deformable element (21) has a Shore hardness that enables the shape of the deformable element to conform to the engagement part or the engagement parts (53) with which it abuts in the fixing position.

5. A system according to any one of claims 1-4 in which the second engagement part is provided on the mov-

able fixing element (20) of the fixing device, wherein the fixing device is hinged along an elongate channel element (10) which includes an axially extending channel (13) for receiving the first engagement parts (53).

6. A system according to any one of claims 1-5 in which the fixing device (2) has the form of a single piece profiled element.

7. A system according to any one of claims 1-6 in which the deformable element (21) is provided on or constitutes the second engagement part.

8. A system according to any one of claims 1-7 in which the movable fixing element (20) includes a projection (21) which is intended to lie in abutment with the first engagement parts (52) in the release position, such as to releasably retain the fixing device in the release position.

9. A fixing device of the system according to claim 1 claims 1 wherein the deformable element (21) is provided on the fixing device (2).

10. A fixing device according to claim 9, in which the deformable element (21) is adapted to surround at least partially the first engagement parts (53) against which it abuts in said fixing position.

11. A fixing device according to any one of claims 9 or 10 in which the deformable element (21) has the form of an elongate strip-like element which is bent sideways in said fixing position along the longitudinal section of the element that lies in abutment with the first engagement parts (53).

12. A fixing device according to any one of claims 9-11 in which the deformable element (21) has a Shore hardness that allows the shape of the deformable element to conform to the first engagement parts (53) with which it abuts in the fixing position.

13. A shelf including a fixing device according to any one of claims 9-12.

Patentansprüche

1. System zum lösbaren Befestigen von Regalzubehör an einem Regal (1), wobei das System umfasst

- eine Anzahl von Regalzubehör (5, 6), von denen jedes einen ersten Eingriffsteil (53) umfasst, und
- eine Befestigungsvorrichtung (2), die ein längliches Profilelement umfasst, das mindestens einen zweiten Eingriffsteil umfasst, der konzipiert ist, zusammenwirkend mit den ersten Eingriffsteilen der Anzahl an Regalzubehör einzugreifen, wobei die Befestigungsvorrichtung dazu beabsichtigt ist, entlang der Vorderkante eines Regals befestigt zu werden, und diese ein bewegliches Befestigungselement (20) umfasst, das über seine gesamte Länge zwischen einer Befestigungsposition, in der die ersten Eingriffsteile der Anzahl an Regalzubehör zusammen mit dem zweiten Eingriffsteil an dem Profilelement befestigt werden, und einer Löseposition, in der die ersten Eingriffsteile gelöst werden, um entsprechend ein gleichzeitiges Befestigen und Lösen der Anzahl an Regalzubehör zu ermöglichen, bistabil drehbar einstellbar ist, **dadurch gekennzeichnet, dass** die ersten Eingriffsteile (53) oder der zweite Eingriffsteil ein elastisches Deformationselement (21) umfassen, das derart konzipiert ist, dass es in der Befestigungsposition entsprechend bei Anliegen an dem zweiten Eingriffsteil oder an den ersten Eingriffsteilen einen deformierten Zustand annimmt, um die Anlagefläche zwischen den zusammenwirkenden Eingriffsteilen zu erhöhen.

2. System nach Anspruch 1, wobei das Deformationselement (21) derart konfiguriert ist, dass es mindestens teilweise den Eingriffsteil oder die Eingriffsteile (53) umgibt, an denen es in der Befestigungsposition anliegt.

3. System nach einem der Ansprüche 1 oder 2, wobei das Deformationselement (21) die Form eines länglichen streifenartigen Elements aufweist, das in der Befestigungsposition seitwärts entlang dem Längsschnitt des Elements gebogen ist, das entsprechend an dem zweiten Eingriffsteil oder den ersten Eingriffsteilen (53) anliegt.

4. System nach einem der Ansprüche 1 bis 3, wobei das Deformationselement (21) eine Shorehärte aufweist, die ermöglicht, dass die Form des Deformationselements dem Eingriffsteil oder den Eingriffsteilen (53) entspricht, an denen es in der Befestigungsposition anliegt.

5. System nach einem der Ansprüche 1 bis 4, wobei der zweite Eingriffsteil an dem beweglichen Befestigungselement (20) der Befestigungsvorrichtung vorgesehen ist, wobei die Befestigungsvorrichtung entlang einem länglichen Kanalelement (10) eingehängt wird, das einen sich axial erstreckenden Kanal (13) zum Aufnehmen der ersten Eingriffsteile (53) umfasst.

6. System nach einem der Ansprüche 1 bis 5, wobei die Befestigungsvorrichtung (2) die Form eines einteiligen Profilelements aufweist.

7. System nach einem der Ansprüche 1 bis 6, wobei das Deformationselement (21) an dem zweiten Eingriffsteil vorgesehen ist oder dieses bildet.

8. System nach einem der Ansprüche 1 bis 7, wobei das bewegliche Befestigungselement (20) einen Vorsprung (21) umfasst, der dazu beabsichtigt ist, an den ersten Eingriffsteilen (52) in der Löseposition anzuliegen, wie beispielsweise um die Befestigungsvorrichtung in der Löseposition lösbar zu halten.

9. Befestigungsvorrichtung des Systems nach Anspruch 1, wobei das Deformationselement (21) an der Befestigungsvorrichtung (2) vorgesehen ist.

10. Befestigungsvorrichtung nach Anspruch 9, wobei das Deformationselement (21) angepasst ist, die ersten Eingriffsteile (53) mindestens teilweise zu umgeben, gegen die es in der Befestigungsposition anliegt.

11. Befestigungsvorrichtung nach einem der Ansprüche 9 oder 10, wobei das Deformationselement (21) die Form eines länglichen streifenartigen Elements aufweist, das in der Befestigungsposition entlang dem Längsschnitt des Elements, das an den ersten Eingriffsteilen (53) anliegt, seitwärts gebogen ist.

12. Befestigungsvorrichtung nach einem der Ansprüche 9 bis 11, wobei das Deformationselement (21) eine Shorehärte aufweist, die ermöglicht, dass die Form des Deformationselements den ersten Eingriffsteilen (53) entspricht, an denen es in der Befestigungsposition anliegt.

13. Regal einschließlich einer Befestigungsvorrichtung nach einem der Ansprüche 9 bis 12.

Revendications

1. Système de fixation d'accessoires d'étagère sur une étagère (1), ce système comprenant

   - un certain nombre d'accessoires d'étagère (5, 6) dont chacun inclut une première pièce d'engagement (53), et
   - un dispositif de fixation (2) qui inclut un élément profilé allongé qui inclut au moins une seconde pièce d'engagement qui est conçue pour un engagement coopératif avec les premières pièces d'engagement du certain nombre d'accessoires d'étagère, le dispositif de fixation étant destiné à être attaché le long du bord frontal d'une étagère et comprenant un élément de fixation mobile (20) qui est ajustable de manière bistable et pivotable sur toute sa longueur entre une position de fixation dans laquelle les premières pièces d'engagement du certain nombre d'accessoires d'étagères en coopération avec la seconde pièce d'engagement sont fixées à l'élément profilé et une position de relâchement dans laquelle les premières pièces d'engagement sont relâchées, pour permettre respectivement la fixation et le relâchement du certain nombre d'accessoires d'étagère, **caractérisé en ce que** les premières pièces d'engagement (53) ou la seconde pièce d'engagement comprennent un élément déformable élastiquement (21) qui est conçu de manière à ce que, dans la position de fixation, en butant sur la seconde pièce d'engagement ou les premières pièces d'engagement respectivement, il prenne un état déformé de manière à augmenter la surface de butée entre les pièces d'engagement coopératives.

2. Système selon la revendication 1, dans lequel l'élément déformable (21) est conçu de manière à entourer au moins partiellement la pièce d'engagement ou les pièces d'engagement (53) contre lesquelles il bute dans ladite position de fixation.

3. Système selon l'une quelconque des revendications 1 ou 2, dans lequel l'élément déformable (21) a la forme d'un élément en forme de bande allongée qui, dans ladite position de fixation, est fléchi vers le côté le long de la section longitudinale de l'élément qui se trouve en butée avec la seconde pièce d'engagement ou les premières pièces d'engagement (53) respectivement.

4. Système selon l'une quelconque des revendications 1 à 3, dans lequel l'élément déformable (21) a une dureté Shore qui permet à la forme de l'élément déformable de se conformer à la pièce d'engagement ou aux pièces d'engagement (53) contre lesquelles il bute dans la position de fixation.

5. Système selon l'une quelconque des revendications 1 à 4, dans lequel la seconde pièce d'engagement est prévue sur l'élément de fixation mobile (20) du dispositif de fixation, le dispositif de fixation étant articulé le long d'un élément à canal allongé (10) qui inclut un canal s'étendant axialement (13) et destiné à recevoir les premières pièces d'engagement (53).

6. Système selon l'une quelconque des revendications 1 à 5, dans lequel le dispositif de fixation (2) a la forme d'un élément profilé monobloc.

7. Système selon l'une quelconque des revendications 1 à 6, dans lequel l'élément déformable (21) est prévu sur ou constitue la seconde pièce d'engagement.

8. Système selon l'une quelconque des revendications

1 à 7, dans lequel l'élément déformable (20) comprend une saillie (21) qui est destinée à se trouver en butée avec les premières pièces d'engagement (52) dans la position de relâchement de manière à retenir de manière dissociable le dispositif de fixation dans la position de relâchement.

9. Dispositif de fixation du système selon la revendication 1, dans lequel l'élément déformable (21) est prévu sur le dispositif de fixation (2).

10. Dispositif de fixation selon la revendication 9, dans lequel l'élément déformable (21) est apte à entourer au moins partiellement les premières pièces d'engagement (53) contre lesquelles il bute dans ladite position de fixation.

11. Dispositif de fixation selon l'une quelconque des revendications 9 ou 10, dans lequel l'élément déformable (21) a la forme d'un élément en forme de bande allongée qui est fléchi vers le côté dans ladite position de fixation le long de la section longitudinale de l'élément qui se trouve en butée avec les premières pièces d'engagement (53).

12. Dispositif de fixation selon l'une quelconque des revendications 9 à 11, dans lequel l'élément déformable (21) a une dureté Shore qui permet à la forme de l'élément déformable de se conformer aux premières pièces d'engagement (53) contre lesquelles il bute dans la position de fixation.

13. Étagère comprenant un dispositif de fixation selon l'une quelconque des revendications 9 à 12.

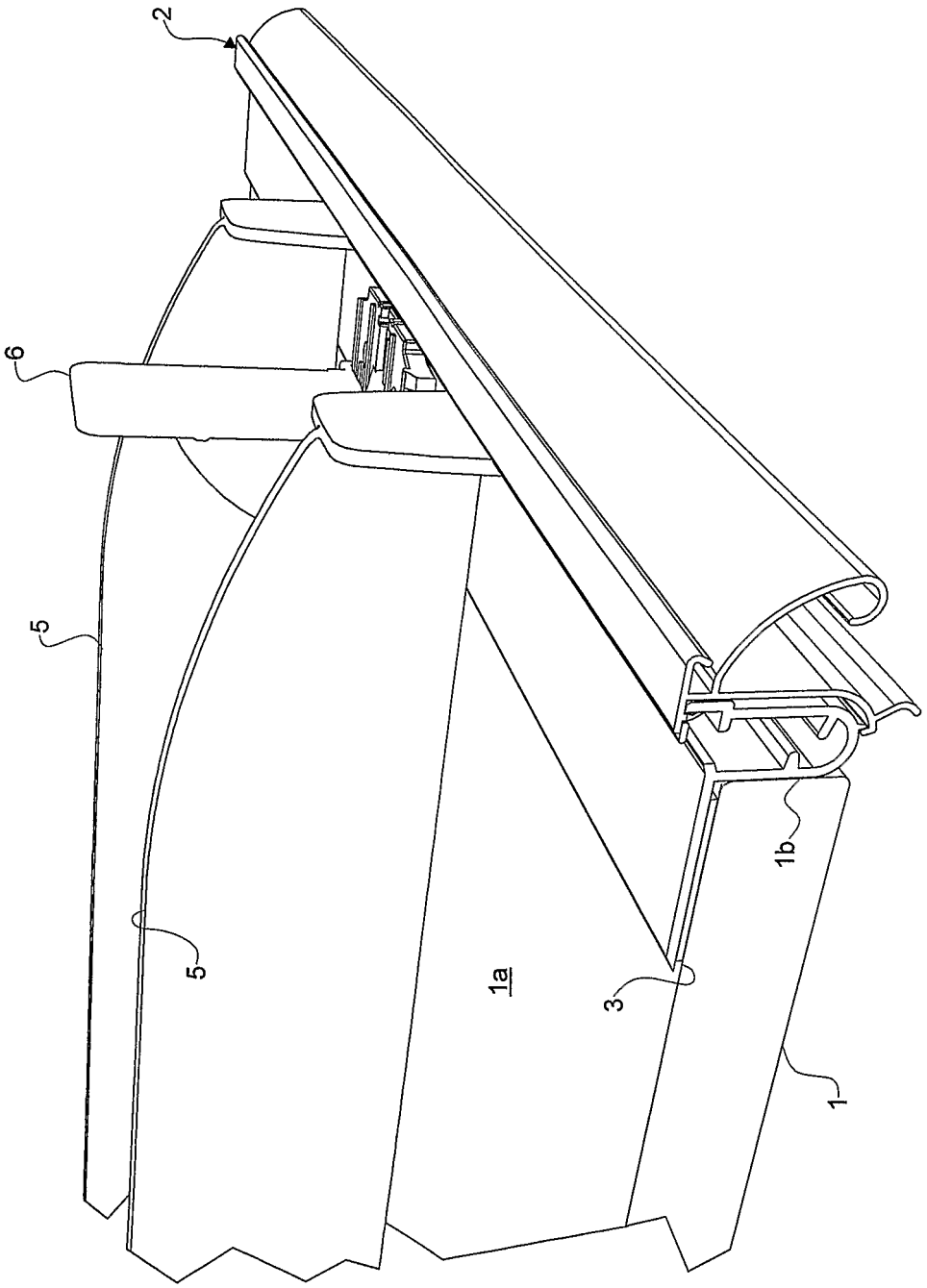


Fig. 1

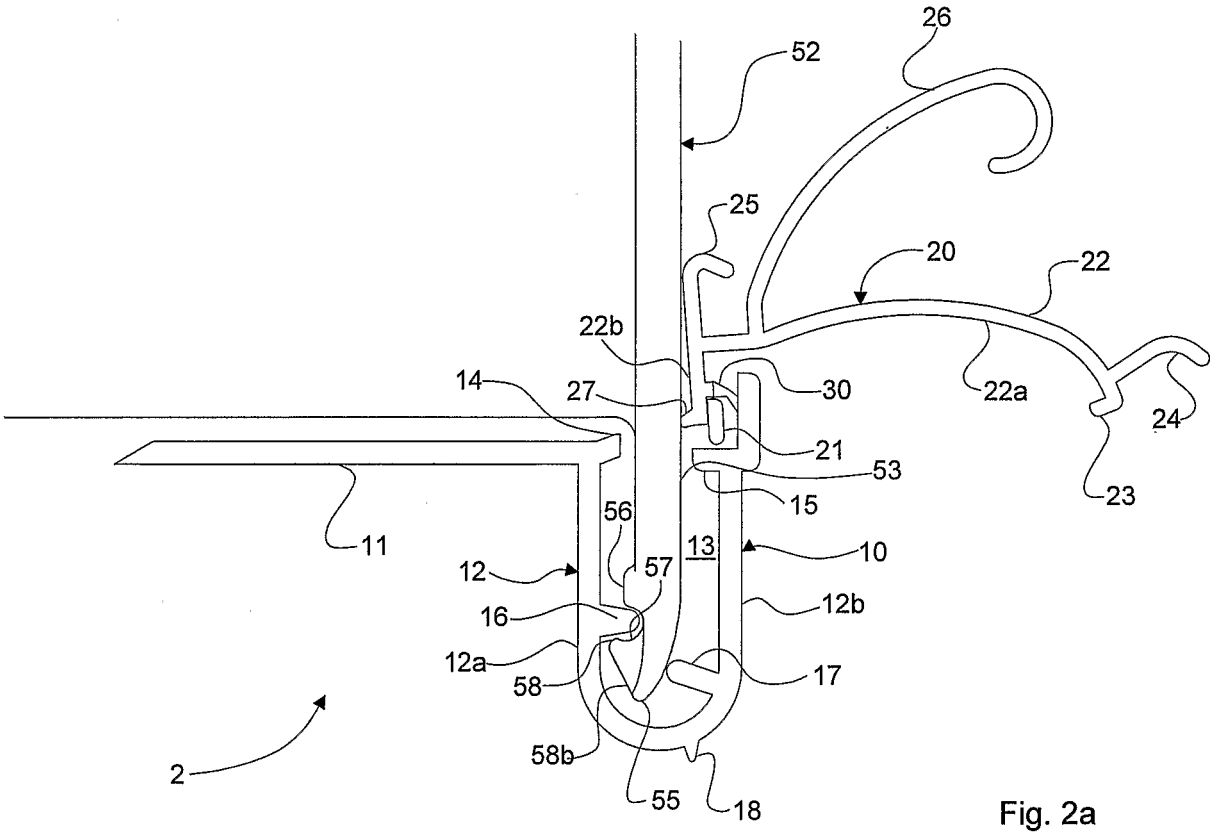
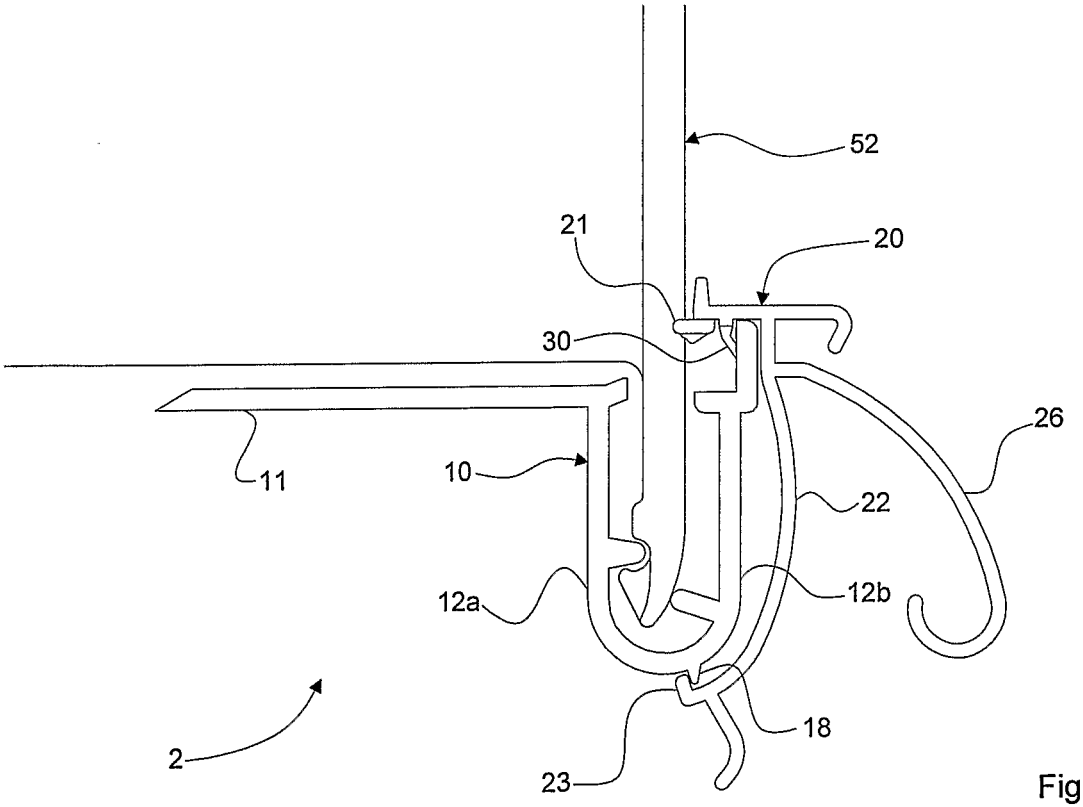

26
52
25
20
22
22b
14
27
30
22a
24
21
53
15
23
56
13
10
11
12
57
16
12b
12a
58
17
58b
55
18
2

Fig. 2a


52
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12a
12b
18
23
2

Fig. 2b

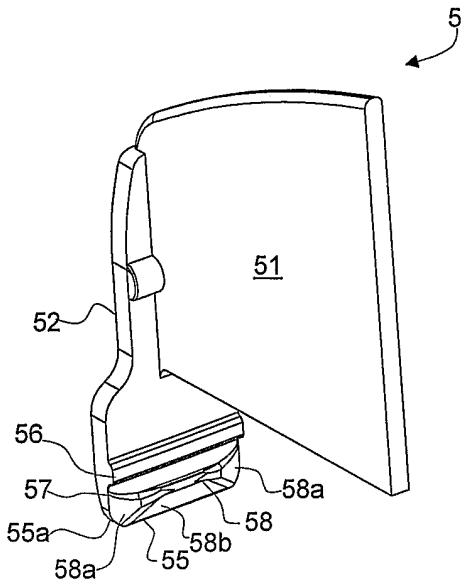

Fig. 3a

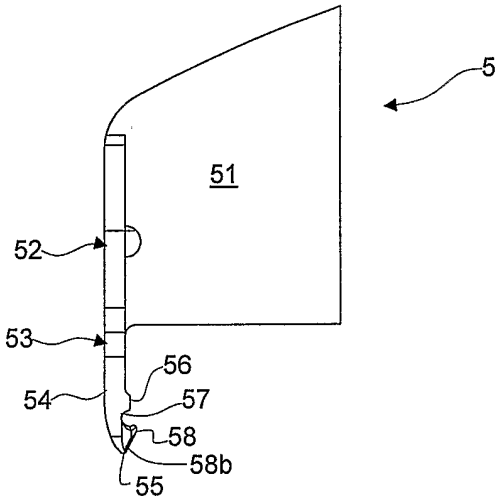

Fig. 3b

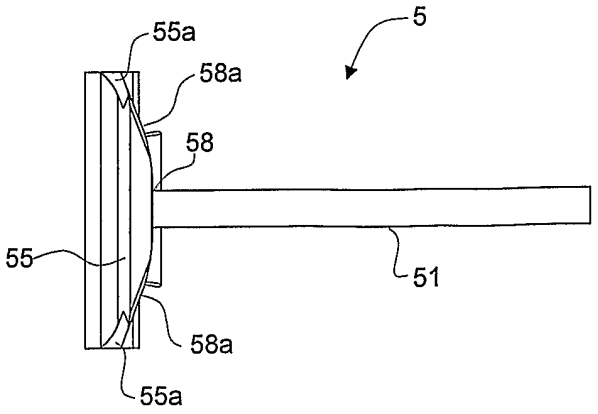

Fig. 3c

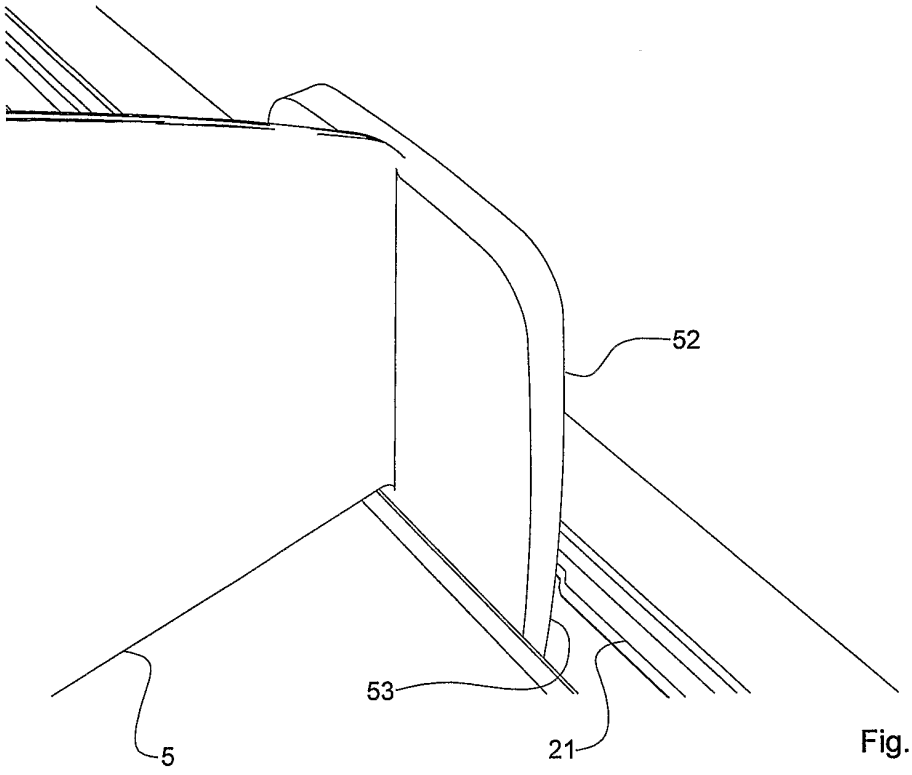

Fig. 4a

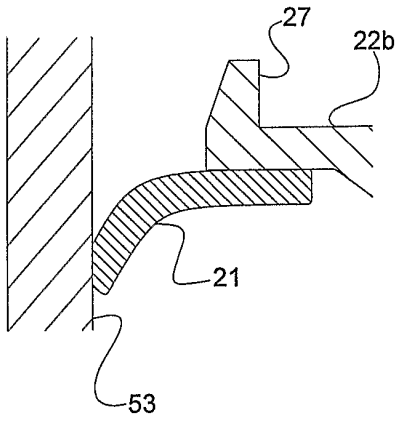

Fig. 4c

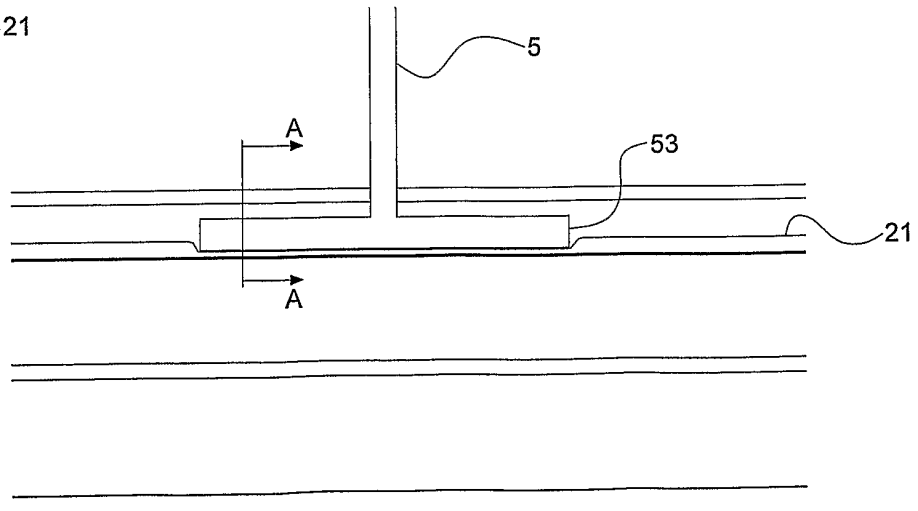

Fig. 4b

REFERENCES CITED IN THE DESCRIPTION

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