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(54) **Collapsible container**

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Conteneur compressible

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Description

[0001] The present invention relates to a container, and more particularly, to a container according to the preamble of claim 1 for the transport of consumer products, and their display in a retail outlet, which is e.g. known from 6B 2373 240 A.

[0002] Collapsible containers are known for use in many applications, including retail delivery. Typically, the containers are formed of plastics material and comprise a base and two pairs of opposed walls. Both the pairs of walls pivot about the base, at the lower edges thereof, so that the container can be collapsed into a substantially flat position when not in use.

[0003] In applications where collapsible containers and nesting containers (with smaller base dimensions) are used together, solutions are known that provide stacking rails or bars that enable nesting containers to be stacked onto collapsible containers. In order to get bars sufficiently inboard to allow easy stacking location it is required that the normal method of folding the short ends first, be reversed (see GB 2359066). Using stacking rails (see GB 2431917) gives conventional folding but does not allow the rail to come inboard far enough. Both these issues make handling difficult.

[0004] In addition, during handling of the containers, the stacking bars may accidentally become detached from the container. The present application helps to overcome these issues and relates to a collapsible container comprising a locking element, wherein the container is substantially as described in UK Patent Publication No. 2476856 by the same Inventor.

[0005] EP 2 039 615 A1 describes a collapsible container which includes a plurality of walls collapsible onto the base. At least one wall has a support pivotably mounted proximate an upper end thereof. The support is pivotable between a support position where it can support another container thereon and a retracted position aligned with the wall. A latch assembly connects the wall to an adjacent wall. A resilient portion of the latch assembly also urges the support from the retracted position toward the support position. When the latch is released, the support can be freely returned to the retracted position against the wall and the wall can be collapsed onto the base without having to overcome the force of a biasing member to position the support against the wall.

[0006] WO 01/44060 A1 describes a container having has a base which is rectangular. Walls are upstanding from the base. Hinge arrangements connect the walls to the base allowing the container to collapse by hinging the walls over the base. Stacking bars having a stacking position and filling position. The bars can be moved between their stacking and filling positions or can be moved in an alternative manner to cause the walls to be released for collapsing.

[0007] It is an object of the present invention to provide for an improved collapsible container.

[0008] This object is achieved by a collapsible container according to claim 1 and to claim 18.

[0009] The present invention relates to a collapsible container comprising the features defined in claim 1, namely base, a first pair of opposed walls and a second pair of opposed walls, the first pair of opposed walls and the second pair of opposed walls defining an opening in the top of the container, wherein the container further comprises at least one stacking member which, when the container is erect, is movable between a stacking position in which the stacking member is positioned to support the base of another container thereon and a filling position in which the stacking member is substantially removed from the opening in the top of the container, and wherein the container further comprises at least one locking element for securing the at least one stacking member to the container. The provision of the at least one locking element prevents the unwanted detachment of the at least one stacking member from the container during operation, for example, during handling, folding or washing of the container.

[0010] The at least one locking element comprises a snap fit securing means. The provision of a locking element comprising a snap fit securing means assists with the engagement of the stacking member with the container. In addition, the provision of a snap fit securing means has the advantage that the stacking member may be detachable if needed. Advantageously, the at least one locking element may comprise a resilient securing means.

[0011] The at least one locking element is provided on the at least one stacking member. Thus, in the event that the locking element is damaged during use, it will be necessary to replace only the stacking member, rather than the entire container.

[0012] Preferably, the at least one locking element is integrally formed on the at least one stacking member. Advantageously, the integral formation of the locking element on the stacking member provides a structure which is more robust than that produced when the locking element and stacking member are provided separately and subsequently attached to one another. Furthermore, the integral formation of the locking element on the stacking member advantageously makes the stacking member cheaper and easier to manufacture.

[0013] Advantageously, the provision of the at least one locking element assists in the folding of the container from an unfolded position to a folded position. In addition, the provision of the at least one locking element advantageously improves the longevity of the container.

[0014] The at least one stacking member comprises an elongate bar and two legs at the extremities thereof, wherein the at least one locking element is provided at one end of at least one of the legs. The position of the at least one locking element at one end of the leg of the at least one stacking member has the effect that, after engagement of the at least one stacking member with the container, the at least one stacking member can pivot about the container wall from a filling position to a stack-

ing position, and vice versa. The at least one locking element comprises at least one recess. The recess retains the locking element when engaged with the container wall.

[0015] The at least one locking element comprises a protrusion for engaging with the container. The protrusion is oval in shape. This shape of the protrusion assists in the fitting of the locking element to the container wall.

[0016] According to the in invention the protrusion is oval in shape. The oval shape of the protrusion provides specificity for fitting the protrusion to the container, preventing the locking element from being removed from the container when the stacking member is in the filling or stacking position or any position in between the filling or stacking position.

[0017] According to the invention at least one of the second pair of opposed walls comprises at least one receiving aperture for receiving the at least one locking element. According to the invention the receiving aperture is provided to receive the protrusion of the at least one locking element. According to the invention the receiving aperture forms a slot or channel in which the protrusion of the locking element may slide after insertion of the locking element within the receiving aperture

[0018] According to the invention the stacking member is in an unlocked position when the locking element is received within the receiving aperture and the stacking member is in a locked position when the locking element is rotated within the receiving aperture such that it cannot be removed therefrom. In the unlocked position, the locking element may be inserted or removed into or from the receiving aperture. This allows the stacking member to be inserted into the receiving aperture during fitting to the container wall, and removed from the receiving aperture for repair. In the locked position, the locking element is secured such that it cannot be removed from the receiving aperture. This allows the stacking member to be secured to the container wall during the stacking or filling of the container.

[0019] According to the invention the longest dimension of the protrusion is parallel to the longest dimension of the receiving aperture when the stacking member is in the unlocked position. According to the invention the longest dimension of the protrusion is rotated to a position wherein it is not parallel to the longest dimension of the receiving aperture when the stacking member is in the locked position. Preferably, the longest dimension of the protrusion is substantially perpendicular to the longest dimension of the receiving aperture when the stacking member is in the locked position. Thus, the protrusion may be aligned with the longest dimension of the receiving aperture during insertion or removal of the stacking member from the receiving aperture, and may not be removed from the receiving aperture when the stacking member is in the stacking or filling position.

[0020] Preferably, at least one rib is provided within the at least one receiving aperture. Advantageously, the rib strengthens, reinforces and provides rigidity to the receiving aperture. Preferably, the at least one rib is partially flexible, thus assisting in the fitting of the locking element to the receiving aperture. Additionally, the rib is of sufficient rigidity to provide partial resistance during insertion of the locking element, such that an improved fit is provided between the locking element and the receiving aperture. Preferably, the rib and receiving aperture are manufactured in combination. Advantageously, the manufacture of the rib and receiving aperture in combination facilitates the production thereof. In one embodiment, the rib and receiving aperture are manufactured separately and subsequently combined.

[0021] In a preferred embodiment, the rib engages with the at least one recess of the locking element. Typically, the locking element is inserted into the receiving aperture via the protrusion and engages with the rib via the recess. Thus, the rib retains the locking element within the receiving aperture via the recess, strengthening the engagement of the locking element with the receiving aperture of the container wall.

[0022] In a preferred embodiment, the at least one stacking member is flexible to allow for fitting of the stacking member to the wall of the container. Advantageously, the flexibility of the stacking member assists in the fitting of the stacking member to the wall of the container.

[0023] Further, the container according to the invention comprises means for securing the walls in the erected position, wherein the means for securing may be rotated into a locked position or a detachable position.

[0024] Preferably, the means for securing the walls in the erected position comprises resilient means. The resilient means assist in securing the walls of the container in the erected position. In addition, the provision of resilient means has the advantage that the walls of the container may be detachable. The means for securing may also comprise a snap fit securing means.

[0025] Preferably, the means for securing comprises at least one protrusion provided on at least one of the second pair of opposed walls, and at least one corresponding receiving element provided on an adjacent wall.

[0026] Advantageously, the shape of the at least one protrusion is designed such that it engages with the at least one receiving element. Preferably, the at least one protrusion has a tooth-like shape. Thus, the shape of the protrusion and the receiving element provides a specificity of interaction, such that the protrusion forms a tight fit with the receiving element.

[0027] Typically, the at least one receiving element comprises at least two ribs which partially surround the protrusion on engagement therewith. The provision of at least two ribs that partially surround the protrusion provides support for the protrusion, such that the protrusion is held securely within the receiving element.

[0028] In one embodiment, the protrusion is in a detachable position wherein it can be easily inserted into or removed from the receiving element. In a second embodiment, the protrusion is rotated within the receiving element to adopt a locked position. In the locked position,

the protrusion cannot be easily removed from the receiving element. When the protrusion is in the locked position, the adjacent walls of the container are secured to one another, preventing the unwanted or accidental detachment thereof. In order to remove the protrusion from the receiving element, an operator must specifically rotate the protrusion such that it adopts the detachable position. It is only in this position that the walls of the container may be folded.

[0029] In a preferred embodiment, biasing means may be provided for biasing the protrusion in the locked position, thus providing a locking engagement between one of the walls of the first pair of opposed walls in an upstanding position and both the walls of the second pair of walls when the walls of the second pair of walls are also in an upstanding position; and at least one actuator may be provided, which actuator is operable against the biasing means to move the protrusion into the detachable position wherein the protrusion may be released from the receiving element so as to disengage the wall of the first pair of opposed walls and both the walls of the second pair of walls. Preferably, the biasing means may comprise a spring. More preferably, the biasing means may comprise an integral spring.

[0030] The present invention will now be described in more detail, by way of example only, and with reference to the Figures, in which:

Figure 1 is a perspective view of a collapsible container according to a first aspect of the invention;

Figure 2 is an overhead view of the collapsible container, showing the stacking member in the stacking position;

Figure 3 is a perspective view of the collapsible container, showing a stacking member in the filling position;

Figure 4 is a perspective view of the collapsible container, showing the position of two of the walls as one of the walls starts to collapse;

Figure 5 is a front view of a portion of a stacking member suitable for use with the container of Figure 1;

Figure 6 is a perspective view of a portion of a stacking member suitable for use with the container of Figure 1;

Figure 7 is a rear view of a portion of a stacking member comprising a locking element suitable for use with the container of Figure 1;

Figure 8 is a front view of a portion of a stacking member comprising a locking element suitable for use with the container of Figure 1;

Figure 9 is a perspective view of a portion of a wall of the container, showing a receiving aperture provided therein;

Figure 10 is a perspective view of a portion of a wall of the container, showing a receiving aperture and a rib provided therein;

Figure 11 is a perspective view of a stacking member and a wall of the container, comprising a receiving aperture and a rib;

Figure 12 is a cross section view of a portion of a wall of the container, showing a receiving aperture and a rib;

Figure 13 is a cross section view of a portion of a wall of the container and a stacking member, wherein the stacking member is in the stacking position;

Figure 14a is an end view of a receiving aperture of a wall of the container, and a protrusion of a locking element of a stacking member, wherein the stacking member is in the unlocked position;

Figure 14b is an end view of a receiving aperture of a wall of the container and a protrusion of a locking element of a stacking member, wherein the stacking member is in the locked position.

Figure 15 is a side view of a stacking member and a receiving aperture provided within the wall of the container, wherein the stacking member is in the unlocked position;

Figure 16 is a rear view of a portion of a wall of the container and a stacking member;

Figure 17 is a front view of a wall of the container and a stacking member in the unlocked position;

Figure 18 is a perspective view of a portion of a wall of the container in accordance with the second aspect of the invention, comprising a receiving element;

Figure 19 is a perspective view of a protrusion provided on an adjacent wall of the container of Figure 18 (wherein the adjacent wall of the container has been removed);

Figure 20a is a plan view of the means for securing in accordance with the second aspect of the invention, wherein the means for securing is in a detachable position;

Figure 20b is a plan view of the means for securing in accordance with the second aspect of the inven-

tion, wherein the means for securing is in a locked position;

Figure 21 is a perspective view of a portion of a wall of the container of Figure 18, showing the engagement of a receiving element provided on a first wall with a protrusion provided on an adjacent wall (wherein the adjacent wall has been removed).

[0031] The present invention relates to a collapsible container 10 comprising a base 12, a first pair of opposed walls 14 and a second pair of opposed walls 16, the first pair of opposed walls 14 and the second pair of opposed walls 16 defining an opening in the top of the container, wherein the container 10 further comprises at least one stacking member 18 which, when the container 10 is erect, is movable between a stacking position in which the stacking member 18 is positioned to support the base of another container thereon and a filling position in which the stacking member 18 is substantially removed from the opening in the top of the container 10, and wherein the container 10 further comprises at least one locking element 20 for securing the at least one stacking member 18 to the container 10. The provision of the at least one locking element 20 is advantageous as it prevents the unwanted detachment of the at least one stacking member 18 from the container 10 during operation, for example, during handling, folding or washing of the container.

[0032] Figure 1 illustrates a collapsible container 10 in accordance with one embodiment of the present invention. The container 10 comprises a base 12, a first pair of opposed walls 14 and a second pair of opposed walls 16. The first and second pair of opposed walls 14, 16 are pivotally attached, by hinges (not shown), at their lower edges to the base.

[0033] Container 10 is typically formed by injection moulding from a suitable plastics material, with a pattern of openings in the base 12 and walls 14, 16 to minimise the weight of an unfilled container 10. A handle opening is provided in a central, upper area of each of the walls of the first pair of opposed walls 14, for use in carrying the container 10. As the skilled person will appreciate, the shape, configuration and dimensions of the container 10, including the relative proportions and thicknesses of the base 12 and walls 14, 16 are chosen according to the design requirements. The base 12, walls 14, 16 and other parts of the container 10 are typically moulded as separate parts and assembled together by snap-fit connection or otherwise.

[0034] Stacking members 18 are located at either end of the container, wherein the rod 18a is substantially parallel and the legs 18b are substantially perpendicular to the first pair of opposed walls 14. Each stacking member 18 comprises a rod 18a, which may be approximately the same length as the walls of the first pair of opposed walls 14 and extends horizontally across the container when the stacking member 18 is in the stacking position, and two legs 18b, which extend downwards from either end of the rod 18a when the stacking member is in the filling position. Each stacking member 18 pivots about one of the walls of the first pair of opposed walls 14.

[0035] The container 10 is designed such that the stacking members 18 can adopt the stacking position (in which the stacking members 18 rotate forwards such that they are positioned over the opening in the top of the container 10, as shown in Figure 2), the filling position (in which the stacking members are aligned within the wall 14, as shown in Figure 3), and intermediate positions (between the filling position and the stacking position). When the stacking members 18 are in the filling position, the rods 18a are positioned adjacent to the walls of the first pair of walls 14. The rods 18a may be slightly shorter in length than the longest dimension of the walls 14, such that they may be moved within the container and rotated from the filling position to the stacking position, and vice versa. An important feature of the present invention is that the rods 18a fit within the side wall of the container 14.

[0036] Figures 5 and 6 illustrate a stacking member.

[0037] With reference to Figures 7 and 8, a locking element 20 is provided at an end of the leg 18b of the stacking member 18, at a position distal to the point of connection of the leg 18b to the rod 18a. It would be understood that the locking element 20 may be provided at an end of one or both legs 18b of the stacking member 18. The locking element 20 extends substantially perpendicular to the leg 18b of the stacking member 18 and comprises a protrusion 22. The locking element also comprises a recess 24. The protrusion 22 is positioned substantially adjacent to the recess 24, such that the locking element 20 has a hook-like conformation. The conformation of the locking element 20 assists in securing the stacking member 18 to the container 10, thus preventing accidental or unwanted disconnection of the stacking member 18 from the container 10 during handling, for example when goods are loaded into the container, or when the walls of the container are manipulated by an operator.

[0038] The wall 14 of the container 10 comprises a receiving aperture 26, as can be seen in Figures 9 and 10. The receiving aperture 26 is provided at a lateral edge of the wall 14 and is substantially parallel to the lateral edge of the wall 14. The receiving aperture 26 forms an elongate slot or channel. Typically, the protrusion 22 of the locking element 20 is substantially rounded in shape to assist in fitting the locking element 20 to the wall 14 of the container 10. The protrusion 22 is inserted into the receiving aperture 26 and may slide therein. Figure 11 shows the engagement of the locking element 20 with the receiving aperture 26. Figures 12 and 13 show a cross-section view of the receiving aperture 26. In Figure 13, the stacking member 18 is shown to be in the stacking position (i.e. locked).

[0039] Typically, a rib 28 is provided within the receiving aperture 26. The provision of the rib 28 strengthens, reinforces and provides rigidity to the receiving aperture 26. In addition, the rib 28 is partially flexible, thus assisting

in the fitting of the protrusion 22 to the receiving aperture 26. Furthermore, the rib 28 is also of sufficient rigidity to strengthen the receiving aperture 26 and retain the locking element 20 therein.

[0040] Preferably, the rib 28 and receiving aperture 26 are manufactured in combination with one another, i.e. as a single unit. The manufacture of the rib 28 and receiving aperture 26 in combination advantageously facilitates the production thereof. In one embodiment, the rib 28 and receiving aperture 26 are manufactured separately and subsequently combined.

[0041] When the locking element 20 is inserted into the receiving aperture 26, the rib 28 engages with the recess 24 of the locking element 20. Thus, the locking element 20 is retained within the receiving aperture 26 via the engagement of the rib 28 with the recess 24.

[0042] The protrusion 22 of the locking element 20 is oval in shape. Upon insertion or removal of the locking element 20 from the receiving aperture 26 (i.e. when the stacking member is in the unlocked position), the longest dimension of the protrusion 22 must be substantially parallel to the longest dimension of the receiving aperture 26. When the stacking member 18 is moved to adopt the stacking or filling position, or any position in between the stacking position and the filling position, (i.e. when the stacking member is in the locked position), the stacking member 18 is rotated such that the protrusion 22 is no longer substantially parallel and is preferably substantially perpendicular to the receiving aperture 26. Thus, the locking element 20 is secured in place and may not be removed from the receiving aperture 26 when the stacking member 18 is in the stacking or filling conformation. This has the effect of preventing or reducing accidental or unwanted removal of the locking element 20 from the receiving aperture 26, and thus the stacking member 18 from the container 10.

[0043] The configuration of the protrusion 22 during insertion or removal of the locking element from the receiving aperture of the wall (i.e. when the stacking member is in the unlocked position) is illustrated in Figure 14a, showing that the longest dimension of the protrusion 22 is parallel with the longest dimension of the receiving aperture 26. The configuration of the protrusion 22 when the stacking member 18 is in the stacking or filling position (i.e. in the locked position) is shown in Figure 14b. In this conformation, the protrusion 22 has been rotated such that the longest dimension thereof is no longer parallel to the longest dimension of the receiving aperture 26. Indeed, the longest dimension of the protrusion 22 is preferably substantially perpendicular to the longest dimension of the receiving aperture 26. Thus, in this position, the protrusion 22 is secured within the receiving aperture 26 and may not be removed therefrom.

[0044] Figures 15 to 17 show the engagement of the stacking member 18 with the receiving aperture 26. In Figures 15 and 17, the stacking member is in the unlocked position. As discussed above, the stacking member 18 is inserted into the receiving aperture 26 via the protrusion 22 of the locking element 26 and is retained therein via the rib 28.

[0045] Preferably, the at least one stacking member 18 is flexible, to assist in fitting the stacking member 18 to the wall 14 of the container 10.

[0046] In addition, the container 10 may be partially flexible, thus assisting in the alignment of the locking element 20 of the stacking member 18 with the receiving aperture 26 of the wall 14. After the components have been aligned, an operator may apply pressure to the stacking member 18 in order to fit the stacking member 18 to the wall 14 of the container 10.

[0047] Further, the present invention provides a collapsible container 10 comprising a base 12, a first pair of opposed walls 14 and a second pair of opposed walls 16, wherein the container further comprises means for securing 30, 32 the walls 14, 16 in the erected position, wherein the means for securing 30, 32 may be rotated into a locked position or a detachable position.

[0048] With reference to Figures 18 and 19, means for securing 30, 32 are provided upon adjacent walls of the container in accordance with the second aspect of the invention. The means for securing comprise a receiving element 30, wherein the receiving element 30 comprises two ribs (30a, 30b), and a protrusion 32. The receiving element 30 is provided on a first pair of opposed walls 14 and the protrusion 32 is provided on a second pair of opposed walls 16. The protrusion 32 has a tooth-like shape, such that it fits between the two ribs 30a, 30b of the receiving element 30. Thus, on engagement of the protrusion 32 with the receiving element 30, a tight fit is formed between the protrusion 32 and ribs 30a, 30b, such that the protrusion 32 is held securely in place.

[0049] In the detachable position, the protrusion 32 may be easily inserted into or removed from the receiving element 30 (see Figure 20a). In this position, the protrusion 32 is supported by one of the ribs 30b of the receiving element 30. The protrusion is subsequently rotated within the receiving element 30 to adopt a locked position (Figure 20b). In the locked position, the protrusion 32 is in a conformation wherein it cannot be easily removed from the receiving element 30. In this position, both ends of the protrusion are located between the ribs 30a, 30b of the receiving element 30. Thus, the adjacent walls of the container are secured to one another, preventing the unwanted or accidental detachment thereof. In order to remove the protrusion 32 from the receiving element 30, an operator must specifically rotate the protrusion relative to the receiving element such that it adopts the detachable position. It is only in this position that the walls of the container may be folded.

[0050] In a preferred embodiment, biasing means may be provided for biasing the protrusion 32 in the locked position, thus providing a locking engagement between one of the walls of the first pair of opposed walls 14 in an upstanding position and both the walls of the second pair of walls 16 when the walls of the second pair of walls 16 are also in an upstanding position; and at least one ac-

tuator may be provided, which actuator is operable against the biasing means to move the protrusion 32 into the detachable position wherein the protrusion 32 may be released from the receiving element 30 so as to disengage the wall of the first pair of opposed walls 14 and both the walls of the second pair of walls 16. Preferably, the biasing means may comprise a spring (not shown). More preferably, the biasing means may comprise an integral spring. In one embodiment, the biasing means may be provided on a wall of the container. In another embodiment, the biasing means may be provided on the protrusion 32.

[0051] Typically, the ribs 30a, 30b of the receiving element 30 partially surround the protrusion 32 and provide support for the protrusion 32 on engagement with the receiving element 30. As a result, the accidental or unwanted disconnection of the protrusion 32 from the receiving element 30 is prevented, such that the adjacent walls of the container are held in an erect position. The engagement of the protrusion 32 with the receiving element 30 is shown in Figure 21.

[0052] In use, a stacking member 18 is attached to a wall 14 of the container 10 in accordance with the present invention by manipulating and moving the legs 18b of the stacking member 18 into a position wherein the legs 18b may be fitted to and engage with the container wall 14. This is achieved via the engagement of a locking element 20 with a receiving aperture 26 provided within the container wall 14. After fitting, the stacking member 18 may be rotated to adopt a filling position, wherein the rod 18a of the stacking member sits adjacent to the wall of the container 14. In this position, the container 10 may be loaded with goods. The stacking member 18 may subsequently be rotated to adopt a stacking position, wherein the stacking member is positioned above the opening of the container such that it may support the base of another container positioned thereon. The provision of a locking element in accordance with the invention prevents the accidental or unwanted detachment of the stacking member from the container wall, which detachment would not be desirable during handling, stacking, washing or loading of the container. In addition, the provision of a means for securing in accordance with the second aspect of the invention provides support to the walls of the container, such that adjacent walls do not become accidentally detached from one another during loading, transport, handling or washing of the container.

Claims

1. A collapsible container (10), comprising:

a base (12),
a first pair of opposed walls (14), and
a second pair of opposed walls (16), the first pair of opposed walls (14) and the second pair of opposed walls (16) defining an opening in the top of the container (10),
wherein the container (10) further comprises at least one stacking member (18) which, when the container (10) is erect, is movable between a stacking position in which the stacking member (18) is positioned to support the base (12) of another container (10) thereon and a filling position in which the stacking member (18) is removed from the opening in the top of the container (10),
wherein the container (10) further comprises at least one locking element (20) for securing the at least one stacking member (18) to the container (10),
wherein the at least one stacking member (18) comprises an elongate bar (18a) and two legs (18b) at the extremities thereof, wherein the at least one locking element (20) is provided at one end of at least one of the legs (18b),
wherein the at least one locking element (20) comprises a protrusion (22) for engaging with the container (10), and
wherein at least one of the second pair of opposed walls (16) comprises at least one receiving aperture (26) for receiving the at least one locking element (20), the receiving aperture (26) provided to receive the protrusion (22) of the at least one locking element (20), and
characterized in that
the protrusion (22) of the locking element (20) is oval in shape, wherein, upon insertion or removal of the locking element (20) from the receiving aperture (26), the longest dimension of the protrusion (22) is parallel to the longest dimension of the receiving aperture (26), and, when the stacking member (18) is moved to adopt the stacking or filling position, the stacking member (18) is rotated such that the protrusion (22) is no longer parallel to the receiving aperture (26).

2. A collapsible container (10) according to claim 1, wherein the at least one locking element (20) comprises a snap fit securing means.

3. A collapsible container (10) according to claim 1 or 2, wherein the at least one locking element (20) is provided on the at least one stacking member (18).

4. A collapsible container (10) according to claim 1, 2 or 3, wherein the at least one locking element (20) is integrally formed on the at least one stacking member (18).

5. A collapsible container (10) according to any one of the preceding claims, wherein the at least one locking element (20) comprises at least one recess (24).

6. A collapsible container (10) according to any one of the preceding claims, wherein the stacking member (18) is in an unlocked position when the locking element (20) is received within the receiving aperture (26).

7. A collapsible container (10) according to any one of the preceding claims, wherein the stacking member (18) is in a locked position when the locking element (20) is rotated within the receiving aperture (26) such that it cannot be removed therefrom.

8. A collapsible container (10) according to any one of the preceding claims, wherein the longest dimension of the protrusion (22) is perpendicular to the longest dimension of the receiving aperture (26) when the stacking member (18) is in the locked position.

9. A collapsible container (10) according to any one of the preceding claims, wherein at least one rib (28) is provided within the at least one receiving aperture (26).

10. A collapsible container (10) according to any one of the preceding claims, wherein the at least one stacking member (18) is flexible to allow for fitting of the stacking member (18) to the wall of the container (10).

11. A collapsible container (10) according to any one of the preceding claims, comprising:

    means (30, 32) for securing the walls in the erected position, wherein the means (30, 32) for securing are rotatable into a locked position or a detachable position.

12. A collapsible container (10) according to claim 11, wherein the means (30, 32) for securing the walls in the erected position comprises resilient means.

13. A collapsible container (10) according to claim 11 or 12, wherein the means (30, 32) for securing comprises at least one protrusion (32) provided on at least one of the second pair of opposed walls (16), and at least one receiving element (30) provided on an adjacent wall receiving the at least one protrusion (32).

14. A collapsible container (10) according to claim 13, wherein the shape of the at least one protrusion (22) is designed such that it engages with the at least one receiving element (30).

15. A collapsible container (10) according to claim 14, wherein the at least one protrusion (22) has a tooth-like shape.

16. A collapsible container (10) according to claim 13, 14 or 15, wherein the at least one receiving element (30) comprises at least two ribs (30a, 30b) which partially surround the protrusion (32) on engagement therewith.

Patentansprüche

1. Ein zusammenklappbarer Behälter (10), der folgende Merkmale aufweist:

    einen Boden (12),
    ein erstes Paar gegenüberliegender Wände (14) und
    ein zweites Paar gegenüberliegender Wände (16), wobei das erste Paar gegenüberliegender Wände (14) und das zweite Paar gegenüberliegender Wände (16) eine Öffnung in dem Oberteil des Behälters (10) definieren,
    wobei der Behälter (10) ferner zumindest ein Stapelungsbauglied (18) aufweist, das dann, wenn der Behälter (10) aufgerichtet ist, zwischen einer Stapelungsposition, in der das Stapelungsbauglied (18) dahin gehend positioniert ist, den Boden (12) eines weiteren Behälters (10) auf demselben zu tragen, und einer Füllposition, in der das Stapelungsbauglied (18) von der Öffnung in dem Oberteil des Behälters (10) entnommen ist, bewegbar ist,
    wobei der Behälter (10) ferner zumindest ein Verriegelungselement (20) zum Befestigen des zumindest eines Stapelungsbauglieds (18) an dem Behälter (10) aufweist,
    wobei das zumindest eine Stapelungsbauglied (18) eine längliche Stange (18a) und zwei Schenkel (18b) an den Endpunkten derselben aufweist, wobei das zumindest eine Verriegelungselement (20) an einem Ende zumindest eines der Schenkel (18b) vorgesehen ist,
    wobei das zumindest eine Verriegelungselement (20) einen Vorsprung (22) zur Ineingriffnahme mit dem Behälter (10) aufweist und
    wobei zumindest eine des zweiten Paares gegenüberliegender Wände (16) zumindest eine Aufnahmeapertur (26) zum Aufnehmen des zumindest einen Verriegelungselements (20) aufweist, wobei die Aufnahmeapertur (26) dazu vorgesehen ist, den Vorsprung (22) des zumindest einen Verriegelungselements (20) aufzunehmen, und
    der **dadurch gekennzeichnet ist, dass**
    der Vorsprung (22) des Verriegelungselements (20) eine ovale Form aufweist, wobei auf eine Einfügung oder Entnahme des Verriegelungselements (20) aus der Aufnahmeapertur (26) hin die längste Abmessung des Vorsprungs (22) parallel zu der längsten Abmessung der Aufnah-

meapertur (26) ist, und dann, wenn das Stapelungsbauglied (18) dahin gehend bewegt wird, die Stapelungs- oder Füllposition einzunehmen, das Stapelungsbauglied (18) derart gedreht wird, dass der Vorsprung (22) nicht mehr parallel zu der Aufnahmeapertur (26) ist.

2. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 1, bei dem das zumindest eine Verriegelungselement (20) eine Einschnapp-Befestigungseinrichtung aufweist.

3. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 1 oder 2, bei dem das zumindest eine Verriegelungselement (20) an dem zumindest einen Stapelungsbauglied (18) vorgesehen ist.

4. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 1, 2 oder 3, bei dem das zumindest eine Verriegelungselement (20) einstückig an dem zumindest einen Stapelungsbauglied (18) gebildet ist.

5. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem das zumindest eine Verriegelungselement (20) zumindest eine Aussparung (24) aufweist.

6. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem das Stapelungsbauglied (16) in einer unverriegelten Position ist, wenn das Verriegelungselement (20) in der Aufnahmeapertur (26) aufgenommen ist.

7. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem sich das Stapelungsbauglied (18) in einer verriegelten Position befindet, wenn das Verriegelungselement (20) in der Aufnahmeapertur (26) derart gedreht ist, dass es nicht aus derselben entnommen werden kann.

8. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem die längste Abmessung des Vorsprungs (22) senkrecht zu der längsten Abmessung der Aufnahmeapertur (26) ist, wenn sich das Stapelungsbauglied (18) in der verriegelten Position befindet.

9. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem zumindest eine Rippe (28) in der zumindest einen Aufnahmeapertur (26) vorgesehen ist.

10. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, bei dem das zumindest eine Stapelungsbauglied (18) dahin gehend flexibel ist, ein Aufsetzen des Stapelungsbauglieds (18) an die Wand des Behälters (10) zu ermöglichen.

11. Ein zusammenklappbarer Behälter (10) gemäß einem der vorhergehenden Ansprüche, der folgende Merkmale aufweist:

Einrichtungen (30, 32) zum Befestigen der Wände in der aufgerichteten Position, wobei die Einrichtungen (30, 32) zum Befestigen in eine verriegelte Position oder eine lösbare Position drehbar sind.

12. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 11, bei dem die Einrichtungen (30, 32) zum Befestigen der Wände in der aufgerichteten Position elastische Einrichtungen umfassen.

13. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 11 oder 12, bei dem die Einrichtungen (30, 32) zum Befestigen zumindest einen Vorsprung (32), der an zumindest einer des zweiten Paares gegenüberliegender Wände (16) vorgesehen ist, und zumindest ein Aufnahmeelement (30), das an einer benachbarten Wand vorgesehen ist, die den zumindest einen Vorsprung (32) aufnimmt, aufweisen.

14. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 13, bei dem die Form des zumindest einen Vorsprungs (22) so entworfen ist, dass er mit dem zumindest einen Aufnahmeelement (30) in Eingriff gelangt.

15. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 14, bei dem der zumindest eine Vorsprung (22) eine zahnartige Form aufweist.

16. Ein zusammenklappbarer Behälter (10) gemäß Anspruch 13, 14 oder 15, bei dem das zumindest eine Aufnahmeelement (30) zumindest zwei Rippen (30a, 30b) aufweist, die den Vorsprung (32) bei einer Ineingriffnahme mit demselben teilweise umgeben.

Revendications

1. Conteneur repliable (10), comprenant:

une base (12),
une première paire de parois opposées (14), et une deuxième paire de parois opposées (16), la première paire de parois opposées (14) et la deuxième paire de parois opposées (16) définissant une ouverture dans la partie supérieure du conteneur (10),
dans lequel le conteneur (10) comprend par ailleurs au moins un élément d'empilage (18) qui, lorsque le conteneur (10) est redressé, est déplaçable entre une position d'empilage dans

laquelle l'élément d'empilage (18) est positionné de manière à supporter la base (12) d'un autre conteneur (10) sur ce dernier et une position de remplissage dans laquelle l'élément d'empilage (18) est retiré de l'ouverture dans la partie supérieure du conteneur (10),
dans lequel le conteneur (10) comprend par ailleurs au moins un élément de verrouillage (20) destiné à fixer l'au moins un élément d'empilage (18) au conteneur (10),
dans lequel l'au moins un élément d'empilage (18) comprend une barre allongée (18a) et deux branches (18b) aux extrémités de cette dernière, dans lequel l'au moins un élément de verrouillage (20) est prévu à une extrémité d'au moins l'une des branches (18b),
dans lequel l'au moins un élément de verrouillage (20) comprend une saillie (22) destinée à venir en prise avec le conteneur (10), et
dans lequel au moins l'une de la deuxième paire de parois opposées (16) comprend au moins une ouverture de réception (26) destinée à recevoir l'au moins un élément de verrouillage (20), l'ouverture de réception (26) étant prévue pour recevoir la saillie (22) de l'au moins un élément de verrouillage (20), et
caractérisé par le fait que
la saillie (22) de l'élément de verrouillage (20) est de forme ovale, où, après insertion ou retrait de l'élément de verrouillage (20) de l'ouverture de réception (26), la dimension la plus longue de la saillie (22) est parallèle à la dimension la plus longue de l'ouverture de réception (26), et, lorsque l'élément d'empilage (18) est déplacé de manière à adopter la position d'empilage ou de remplissage, l'élément d'empilage (18) est tourné de sorte que la saillie (22) ne soit plus parallèle à l'ouverture de réception (26).

2. Conteneur repliable (10) selon la revendication 1, dans lequel l'au moins un élément de verrouillage (20) comprend un moyen de fixation par encliquetage.

3. Conteneur repliable (10) selon la revendication 1 ou 2, dans lequel l'au moins un élément de verrouillage (20) est prévu sur l'au moins un élément d'empilage (18).

4. Conteneur repliable (10) selon la revendication 1, 2 ou 3, dans lequel l'au moins un élément de verrouillage (20) est formé de manière solidaire avec l'au moins un élément d'empilage (18).

5. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel l'au moins un élément de verrouillage (20) comprend au moins un évidement (24).

6. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément d'empilage (18) se trouve dans une position déverrouillée lorsque l'élément de verrouillage (20) est reçu dans l'ouverture de réception (26).

7. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément d'empilage (18) se trouve dans une position verrouillée lorsque l'élément de verrouillage (20) est tourné dans l'ouverture de réception (26) de sorte qu'il ne puisse pas être retiré de cette dernière.

8. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel la dimension la plus longue de la saillie (22) est perpendiculaire à la dimension la plus longue de l'ouverture de réception (26) lorsque l'élément d'empilage (18) se trouve dans la position verrouillée.

9. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel au moins une nervure (28) est prévue à l'intérieur de l'au moins une ouverture de réception (26).

10. Conteneur repliable (10) selon l'une quelconque des revendications précédentes, dans lequel l'au moins un élément d'empilage (18) est flexible de manière à permettre l'emboîtement de l'élément d'empilage (18) dans la paroi du conteneur (10).

11. Conteneur pliable (10) selon l'une quelconque des revendications précédentes, comprenant:

des moyens (30, 32) pour fixer les parois dans la position redressée, où les moyens (30, 32) pour fixer peuvent tourner vers une position verrouillée ou une position amovible.

12. Conteneur repliable (10) selon la revendication 11, dans lequel les moyens (30, 32) pour fixer les parois dans la position redressée comprennent des moyens élastiques.

13. Conteneur repliable (10) selon la revendication 11 ou 12, dans lequel les moyens (30, 32) pour fixer comprennent au moins une saillie (32) prévue sur au moins l'une de la deuxième paire de parois opposées (16), et au moins un élément de réception (30) prévu sur une paroi adjacente recevant l'au moins une saillie (32).

14. Conteneur repliable (10) selon la revendication 13, dans lequel la forme de l'au moins une saillie (22) est conçue de sorte qu'elle vienne en prise avec l'au moins un élément de réception (30).

15. Conteneur repliable (10) selon la revendication 14,

dans lequel l'au moins une saillie (22) présente une forme de dent.

16. Conteneur repliable (10) selon la revendication 13, 14 ou 15, dans lequel l'au moins un élément de réception (30) comprend au moins deux nervures (30a, 30b) qui entourent partiellement la saillie (32) lors de la venue en prise avec cette dernière.

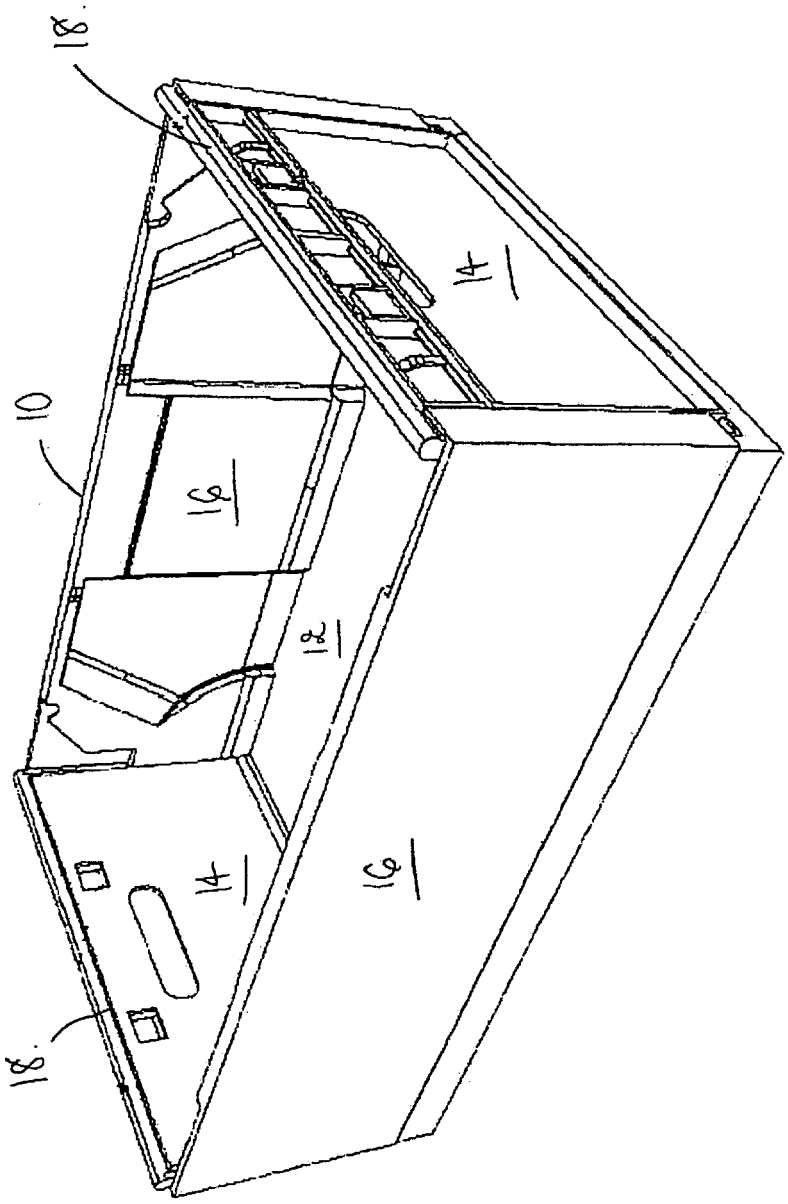


Figure 1

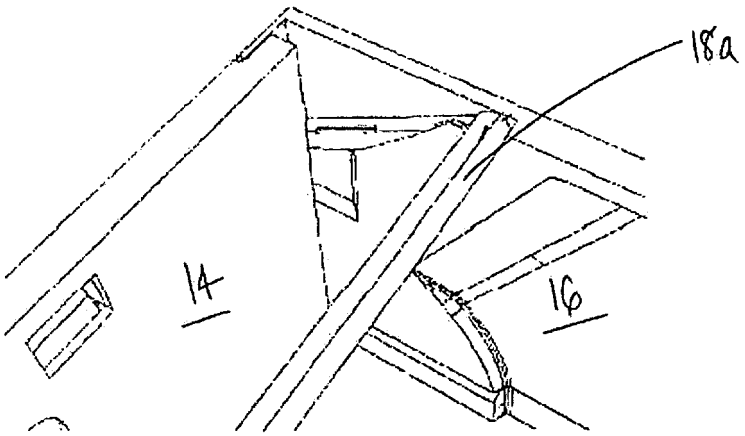


Figure 2

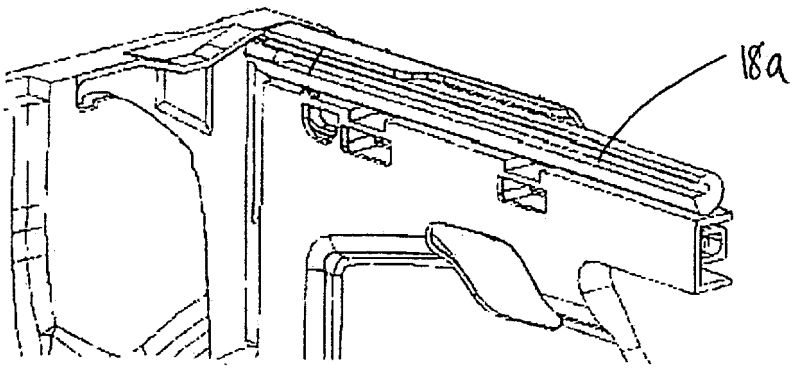


Figure 3

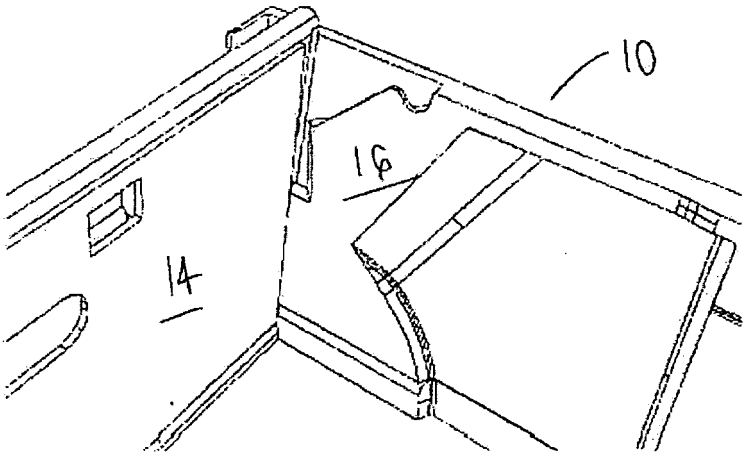


Figure 4

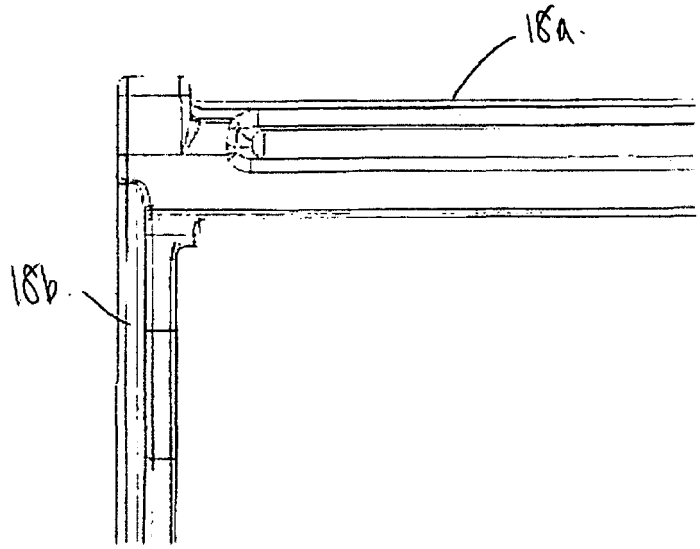


Figure 5

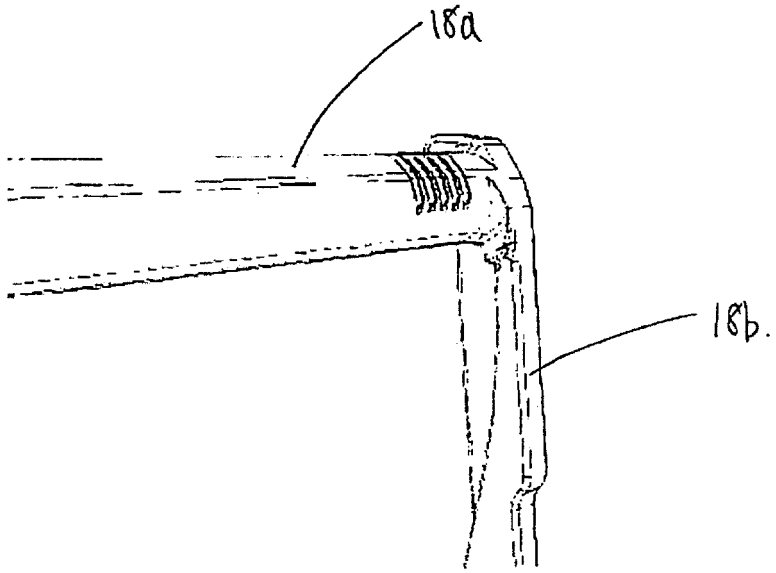


Figure 6

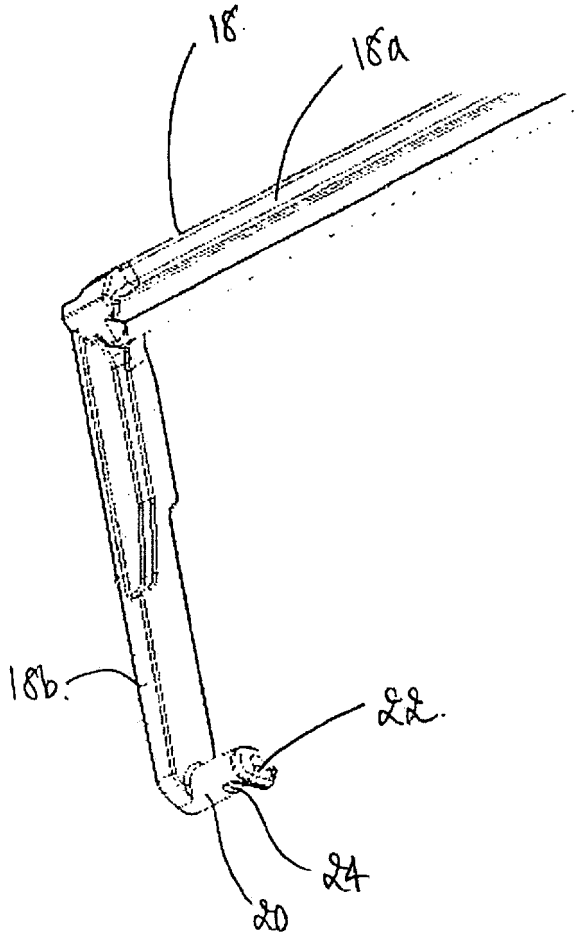


Figure 7

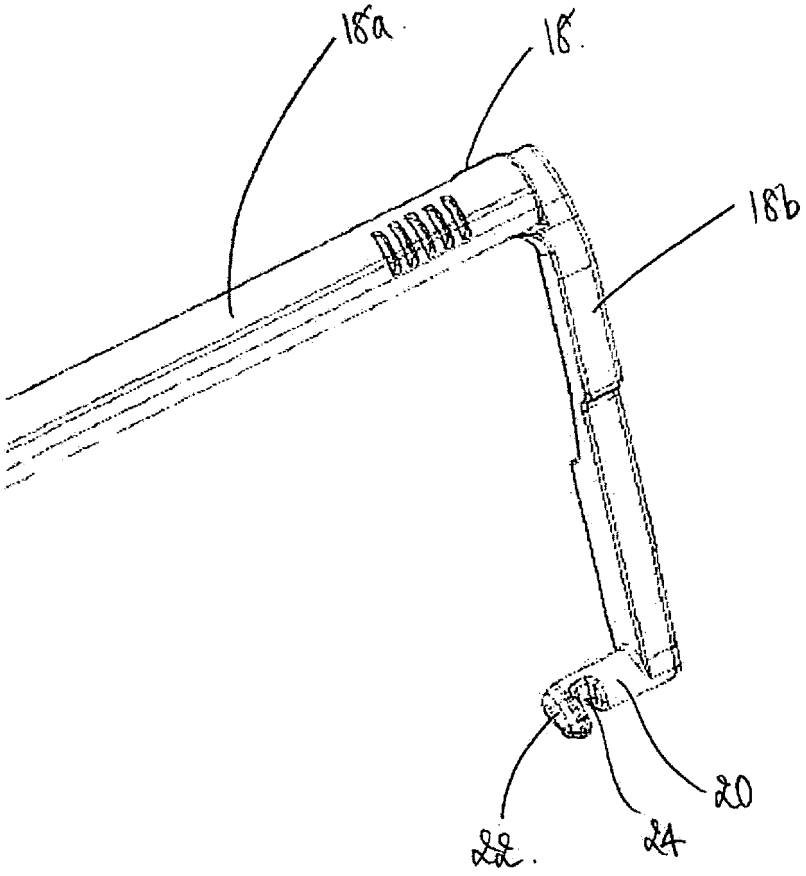


Figure 8

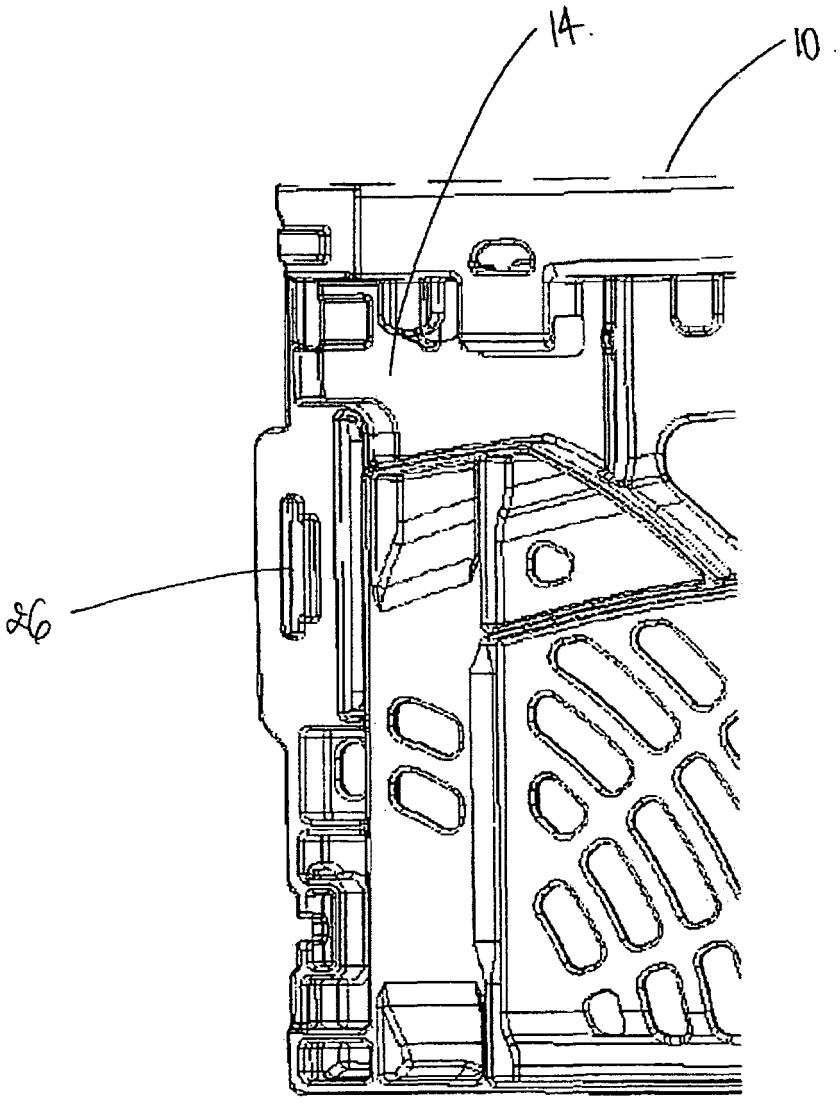


Figure 9

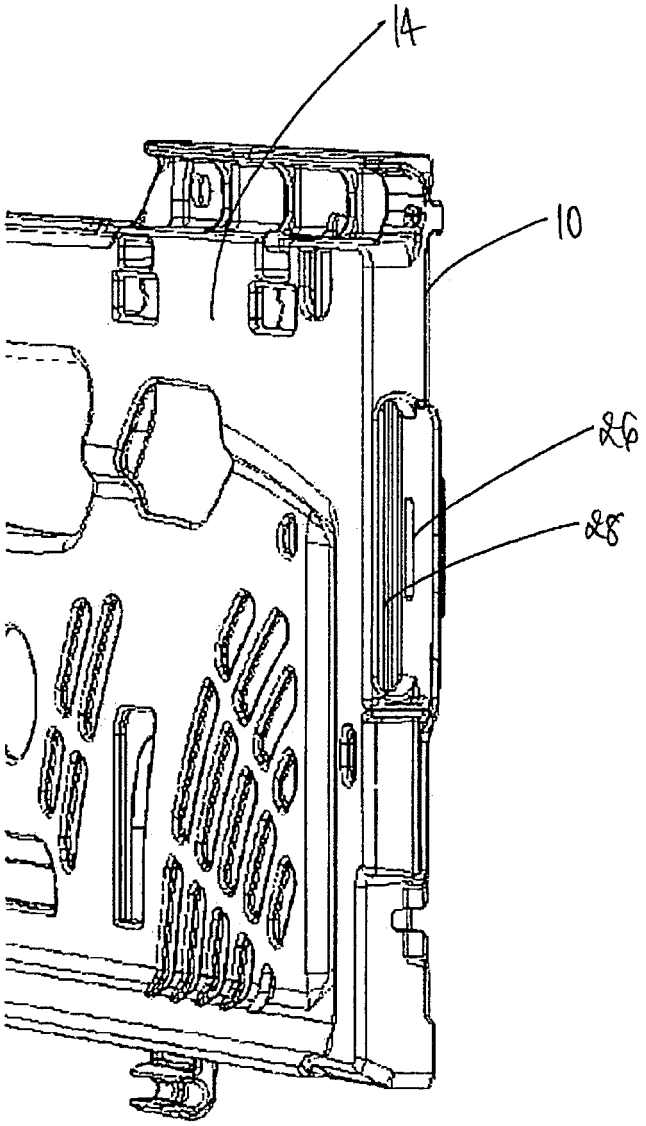


Figure 10

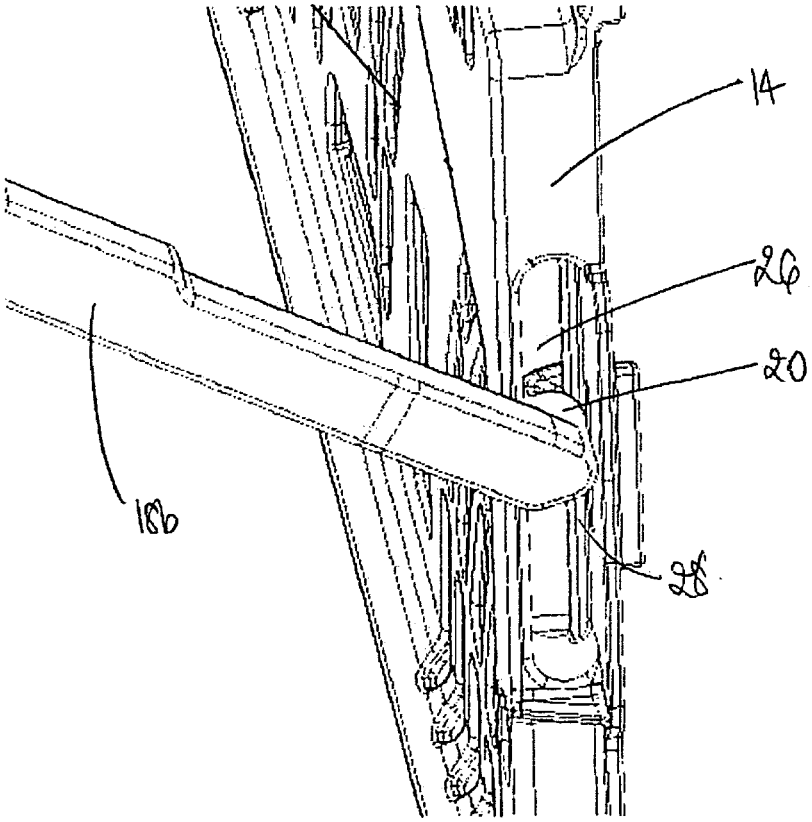


Figure 11

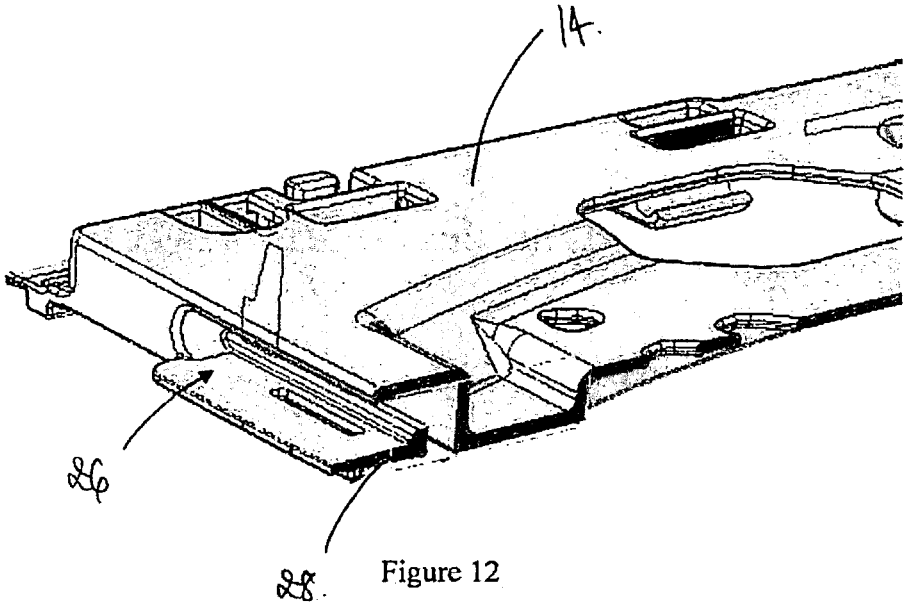


Figure 12

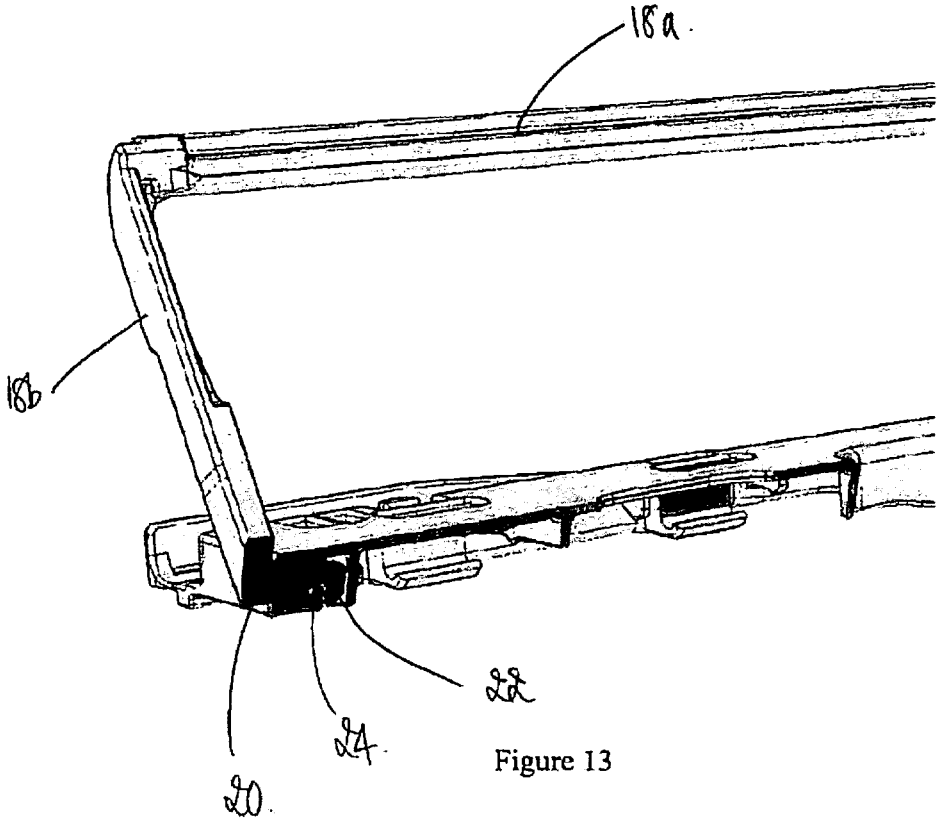
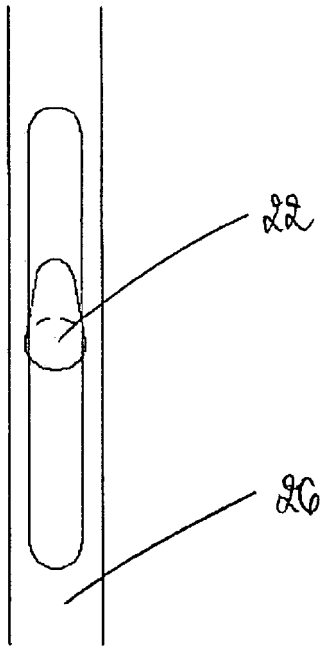


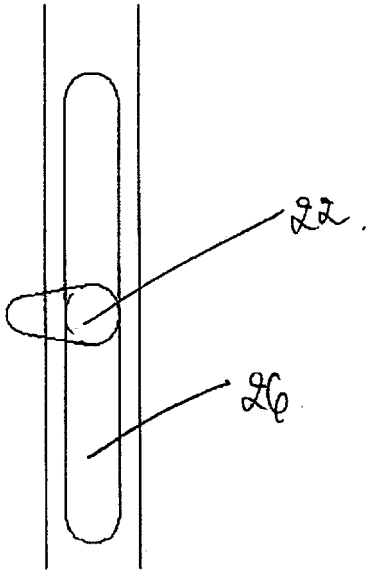
Figure 13

Figure 14

(a)



(b)



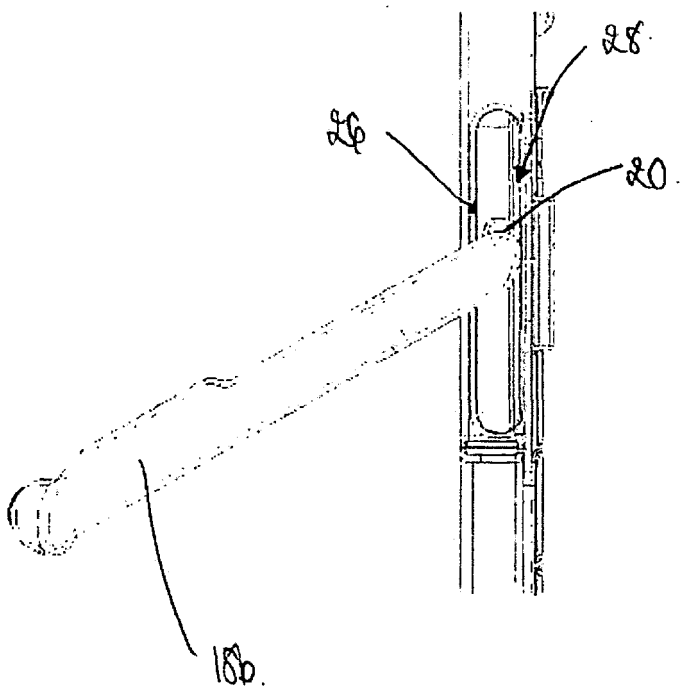


Figure 15

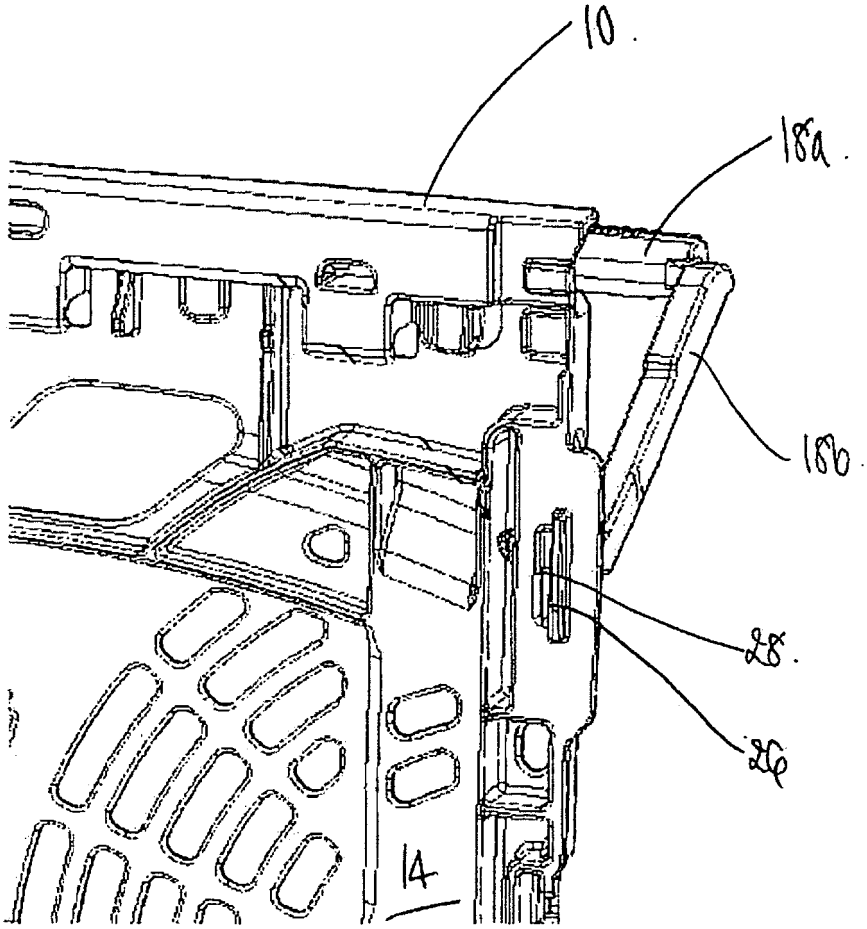


Figure 16

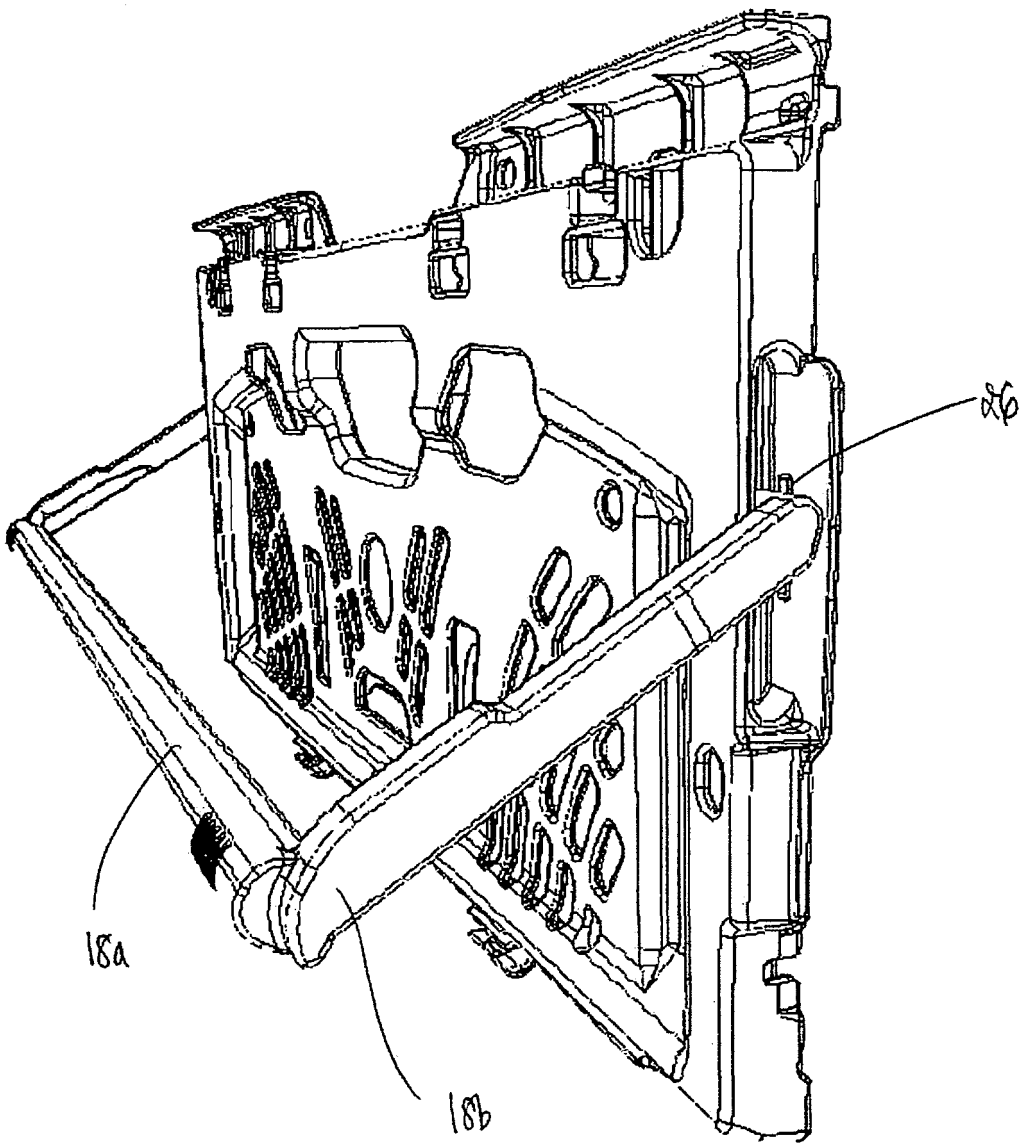


Figure 17

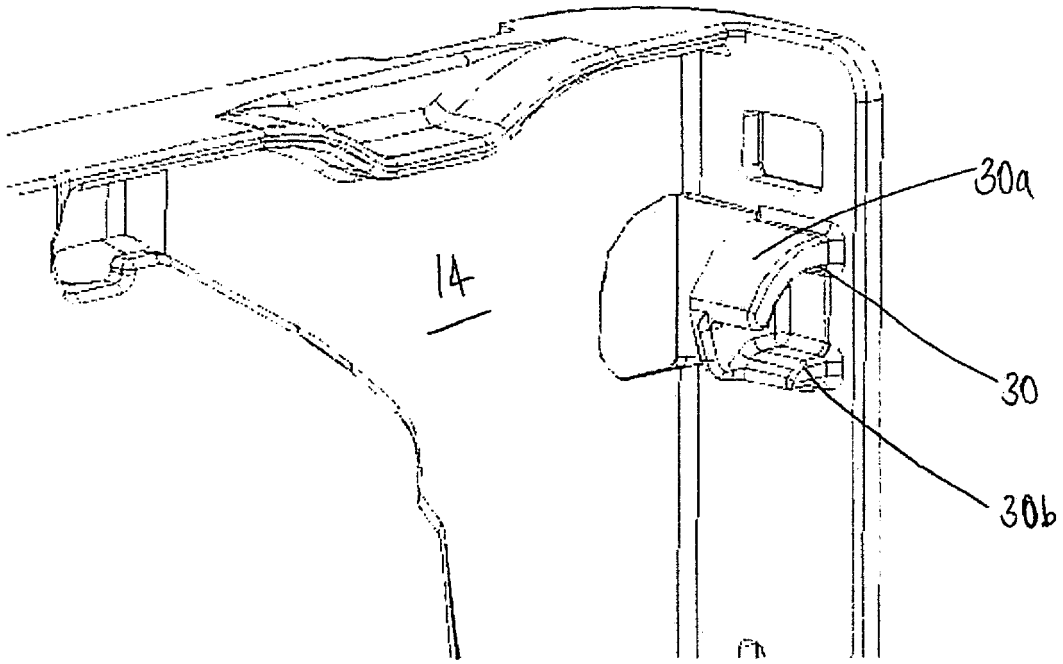


Figure 18

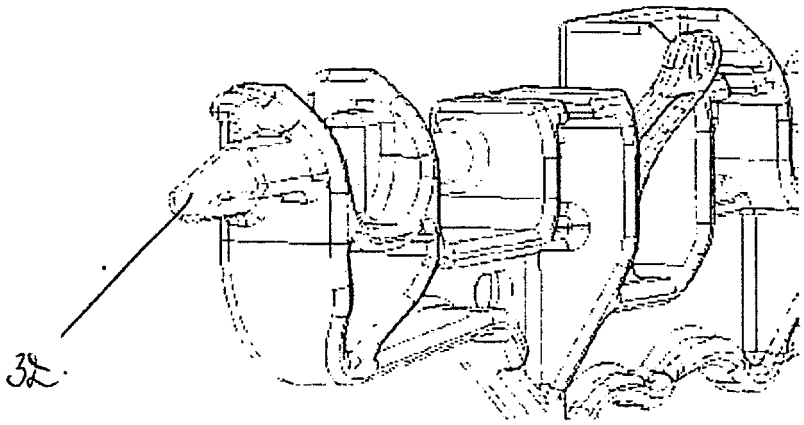
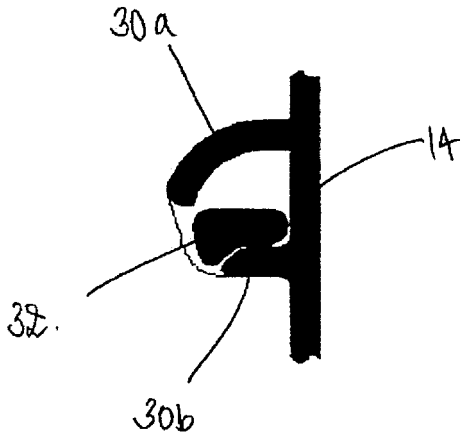


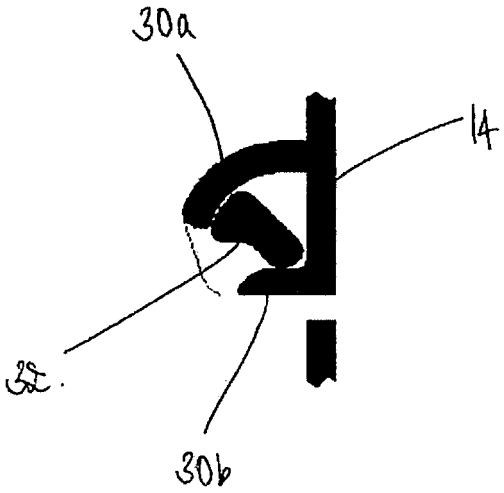
Figure 19

Figure 20

(a)



(b)



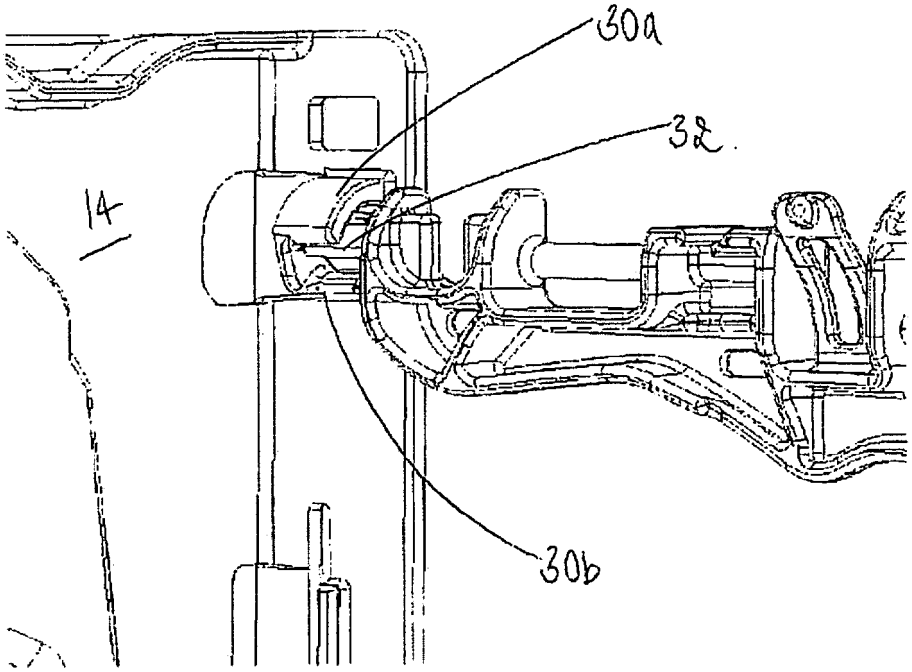


Figure 21

REFERENCES CITED IN THE DESCRIPTION

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