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DESCRIPTION

[0001] This invention relates to a container arrangement according to the preamble of claim 1.

[0002] In order to ship empty containers, it is most efficient if they are nested within one another. Where the containers have lids that can pivot between open and closed positions, the lids need to be pivoted to the open condition alongside the walls in order for the containers to be nested. However, the footprint of the nested containers takes up a large amount of space, because the lids extend outwardly from the containers in their open position.

[0003] GB 2471969 A discloses a nest and stack container according to the preamble of claim 1 further provided with a load securing system.

[0004] According to this invention, there is provided a container according to claim 1.

[0005] As used herein, the phrase "open position footprint" is intended to be understood as follows. When the first container, or the container arrangement, is disposed on a horizontal support surface, the phrase "open position footprint" refers to the area on the support surface covered by the first container, or by the container arrangement, when the, or each, lid arrangement is in the open position.

The lid arrangement may be configured so that it can be rotated about the hinge by the opening angle from the closed position to the open position. The horizontal orientation may be the closed position of the lid arrangement

When the lid arrangement of each container in the container arrangement is in the open position, the lid arrangements extend vertically downwardly from the side walls. The embodiment of the invention described herein provides the advantage that the lid arrangements of all of the containers in the container arrangement extend vertically downwardly, thereby minimizing the amount of floor space occupied by each container arrangement. This allows more of the containers of the embodiment of the present invention to be stored or transported in the same space when not in use than prior art containers.

Thus, in one embodiment of the invention, the aforesaid portion of the lid arrangement of the second container can be nested within the first container. The lid arrangement of the first container may lie flush with the lid arrangement of the second container when the aforesaid portion of the lid arrangement of the second container is received between the wall members of the lid arrangement of the first container.

[0006] The container may comprise first and second opposite upstanding walls. The container may comprise two lid arrangements, each being pivotally attached by respective hinges to the first and second upstanding walls of the container.

[0007] The, or each, lid arrangement may comprise accommodating formations, wherein the accommodating formations on the lid arrangement can accommodate the further lid arrangement of the further container.

[0008] The, or each, lid arrangement may include strengthening formations such as ribs. The accommodating formations on the, or each, lid arrangement may accommodate the strengthening formations on the further lid arrangement. The accommodating formations may comprise a step formation provided across the main member and extending lengthwise thereof.

[0009] The free edge may be substantially opposite the hinge.

[0010] The first side portion may extend from the distal end to the shoulder formation. The second side portion may extend from the shoulder formation to the proximal end.

[0011] In another embodiment, each side region may be angled inwardly from the proximal end to the distal end.

[0012] The main member may comprise a first lid portion extending from the first step formation to the free edge of the lid arrangement. The main member may include a second lid portion extending from the first step formation towards the hinge. The first lid portion may be offset from the second portion to extend over the strengthening formations of the further lid arrangement.

[0013] The main member may further include a second step formation provided between the second lid portion and a third lid portion of the main member, the third lid portion extending from the second step formation towards the hinge. The second lid portion may be offset from the third lid portion, wherein the second lid portion can extend over the hinge of the similar further container. The strengthening formations may comprise ribs, which may extend lengthwise and/or widthwise across the main member.

[0014] The shoulder formations may be provided on the wall member, wherein the wall member comprises first and second wall portions offset from each other on opposite sides of the shoulder formation. The first wall portion may extend from the free edge to the shoulder formation, and may be offset inwardly from the second wall portion. The second wall portion may extend from the shoulder to the hinge. The first wall portion may be disposed inwardly of the second wall portion of the further lid arrangement when the lid arrangements are nested within each other.

[0015] At least one of the upstanding walls may define a locating recess for receiving an edge region of a capping arrangement. The, or each, upstanding wall may have a top edge, the locating recess being defined in the top edge. An example of a suitable capping arrangement is described in prior Patent Specification No: GB2402380, A Cap for Palletised Loads.

[0016] The container may comprise further upstanding walls extending between the first and second upstanding walls, each of which may define a locating recess to locate the capping arrangement therein. The further upstanding walls may comprise opposite third and fourth

upstanding walls. The locating recess may be defined at a region extending from the first or second upstanding wall. In one embodiment, each of the further upstanding walls may define two locating recesses, each extending from a respective one of the first and second upstanding walls.

[0017] One embodiment of the container arrangement comprises an array of containers, each container being as described above, and a capping arrangement mountable on the containers when the containers are disposed adjacent each other, wherein each of the first and second containers has opposite upstanding walls, each upstanding wall defining a locating recess to receive an edge region of the load capping arrangement.

[0018] The array of containers may comprise first and second containers disposed adjacent each other. The container arrangement may further include a support arrangement, which may be a pallet, on which the array is disposed.

[0019] Each upstanding wall may have a top edge, and the locating recess may be defined in the top edge. Each container may comprise first and second upstanding walls to which the lid arrangements are attached. Each container may include third and fourth upstanding walls extending between the first and second upstanding walls. The locating recesses may be defined in the third and fourth upstanding walls. Each of the further upstanding walls may define two recesses, each extending from a respective one of the first and second upstanding walls.

[0020] An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a perspective top view of a container;

Figure 2 is an end view of two nested containers, with the lid arrangements of the upper container being nested within the lid arrangements of the lower container;

Figure 3 shows a top view of a lid arrangement;

Figure 4 is a close-up view of the region marked IV in Figure 3;

Figure 5 is a bottom view of a lid arrangement;

Figure 6 is a side view of a lid arrangement;

Figure 7 is a sectional side view of two lid arrangements, one being nested within the other;

Figure 8 is perspective view of a container arrangement;

Figure 9 is a part sectional front view of the container arrangement shown in Figure 8;

Figure 10 is a close up view of the region marked X in Figure 9;

Figure 11 is a side view of a container arrangement in the form of an array of nested

containers, in which the array comprises seven containers;

Figure 12 is an end view of the container arrangement shown in Figure 11; and

Figure 13 is a sectional side view of two lid arrangements of a further embodiment of a container arrangement

[0021] Figures 1 to 7 of the drawings show a container 10 which comprises a base 12 and four upstanding side walls 14 on the base 12. The walls 14 comprise first and second opposite long walls 18. Each of the long walls 18 has a lid arrangement 16 pivotally attached thereto at a hinge 17 on the upper edge of the long wall 18. The walls 14 further include third and fourth opposite short walls 20 extending between the long walls 18.

[0022] Referring to Figure 3, 5 and 6, each of the lid arrangements 16 comprises a main member 22 and accommodating formations 24 thereon. The accommodating formations 24 comprise first and second step formations 26, 28 extending substantially parallel to each other along the length of the main member 22. The first and second step formation 26, 28 separate the main member 22 into three lid portions, namely, a first lid portion 30 extending from the free edge 32 of the lid arrangement 16 to the first step formation 26, a second lid portion 34 extending from the first step formation 26 to the second step formation 28, and a third lid portion 36 extending from the second step formation 28 to the hinge 17.

[0023] Figure 6 shows diagrammatically a side view of one of the lid arrangements 16. The main member 22 has an upper face 22A and a lower face 22B. The expressions upper and lower faces are derived from the position of those faces when the lid arrangement is in its closed position extending horizontally.

[0024] The first lid portion 30 has a first upper face 30A and a first lower face 30B. The second lid portion 34 has a second upper face 34A and a second lower face 34B. The upper face portion 34A of the second lid portion 34 is offset upwardly at the first step formation 26 from the first upper face portion 30A of the first lid portion 30. The third lid portion 36 has a third upper face 36A and a third lower face 36B. The third upper face 36A is offset upwardly by the second step formation 28 from the second upper face portion 34A.

[0025] Each lid arrangement 16 is pivotable about the hinge 17 from a closed position shown in Figure 1 to an open position shown in Figure 2. As can be seen from Figure 2, when the lid arrangement 16 is in the open position, the lid arrangement 16 extends downwardly along the first or second wall 18 of the container 10.

[0026] The lid arrangement 16 also includes strengthening formations in the form of ribs 52 which extend lengthwise and widthwise along the main member on the lower face 22B thereof. The ribs 52 are shown more clearly in Figure 5 and, as shown in Figure 5, the ribs 52 extend across the second and third lower faces 34B, 36B. The lid arrangement 16 further includes

opposite side regions 40, 42 at each of which a wall member 44 is provided. A further accommodating formation comprising a shoulder 46 is provided in the wall member 44 to separate the wall member 44 into first and second wall portions 48, 50 on opposite sides of the shoulder formation 46.

[0027] As can be seen from Figures 4 and 5, the first wall portion 48 is offset inwardly relative to the second wall portion 50 at the shoulder 46. The purpose of the shoulder 46 is explained below.

[0028] Figure 2 shows a container arrangement 100 in the form of an array comprising first and second nested containers 10, 10F, the second container 10F being nested within the first container 10. As can be seen from Figure 2, the first container 10 is the lowermost of the two containers 10, 10F. The features of the second container 10F are the same as the features of the first container 10 and have been designated with the same reference numerals as the features of the container 10, but suffixed with a letter 'F'.

[0029] When the second container 10F is nested within the first container 10, as shown in Figure 2, the lid arrangements 16F of the second container 10F can be aligned with the lid arrangements 16 of the first container 10 when the lid arrangements 16, 16F are in their open positions. When such alignment occurs, it will be seen that the first wall portion 48F of the wall member 44F of the second container is received between the wall portions 50 of the lid arrangement 16 of the first container 10. This is facilitated by virtue of the fact that the first wall portion 48F is offset inwardly by the shoulder formation 46F.

[0030] Thus, in the arrangement shown in Figure 2, the lid arrangements 16F of the second container 10F are nested in the lid arrangements 16 of the first container 10.

[0031] The nesting of the lid arrangements 16F within the lid arrangement 16 of the first container 10 is further facilitated by the provision of the first and second step formations 26F, 28F of the lid arrangement 16F to accommodate the second and third further lid portions 34, 36 of the further lid arrangement 16, and to accommodate the ribs 52 on the second and third further lid portions 34, 36.

[0032] Figure 7 shows two lid arrangements 16, 16F of a nested arrangement of containers.

[0033] Each of the lid arrangements 16, 16F is in its open condition, and is thereby arranged vertically. In order for the lid arrangement 16F to be received within the further lid arrangement 16 in a nested condition, both lid arrangements 16, 16F are disposed in their open positions, and the second container 10F nested within the further first container 10 (see Figure 2).

[0034] The lid arrangements 16F are then rotated about the hinge 17F from the closed position (see Figure 1), in which the lid arrangements 16F are disposed parallel to the base 12 and, when the container arrangement 100 is disposed on a horizontal support surface S, the lid arrangements 16F are arranged horizontally in their closed position. The movement of the

lid arrangements 16F to the open position, shown in Figure 2 from the closed position is a rotation about the hinge 17F about an opening angle of 270°.

[0035] As can be seen from Figures 2, the lid arrangement 16F of the second container 10F has a footprint on the support surface S that is the same as the footprint of the first container 10. The footprint on the support surface S is indicated by the broken lines P1 extending to the support surface S from the free edges 32 of the lid arrangements 16 of the first container 10. As shown in Figure 2, the lid arrangements 16, 16F, being in their open position, extend vertically. Figure 2 shows that the footprint defined by the lines P1 for the first container 10 with its lid arrangements 16 in the open position is the same as the footprint of the second container 10F also with its lid arrangements 16F in the open position. This provides the advantage in the embodiment shown that the nested array of containers 10 occupies the same floor space as a single container, regardless of the number of containers 10 in the array 101 and, therefore, occupies less floor space than prior art nested container arrays.

[0036] The third portion 36F of the lid arrangement 16F extends downwardly from the hinge 17F towards the hinge 17. The second step formation 28 allows the second lid portion 34F to extend over the hinge 17 to be received within the third lid portion 36 of the further lid arrangement 16.

[0037] The first step formation 26F allows the first lid portion 30F to extend over the ribs 52 and be received within the second lid portion 34 of the first container. As a result, it will be seen from Figure 7, that the lid arrangements 16, 16F are aligned with one another. It will be understood by those skilled in the art that this can be repeated with any suitable number of containers to provide an array of a plurality of nested containers 10 with their lid arrangements also nested within one another to minimise the space occupied by the nested containers.

Referring again to Figure 2, each of the third and fourth opposite upstanding walls 20F of the second container 10F has a top edge 54F. The top edge 54F of each of the third and fourth upstanding walls 20F defines a pair of locating recesses 56F extending from the adjacent first or second upstanding walls 18F.

Figures 8 to 10 show a further container arrangement 100 comprising an array 101 of three nested containers 10. In Figure 8, the array 101 comprises two sets 102 of containers 10, each set 102 comprising three nested containers 10. It will be appreciated that each set 102 could comprise any suitable number of nested containers 10.

If desired, the container arrangement 100 may further include a capping arrangement 104 located on the top of the array 101. The capping arrangement 104 can be, for example as described in GB2402380. The capping arrangement 104 is provided to secure the array 101 to a pallet 106 on which the array 101 is disposed.

The purpose of the locating recesses 56 is to locate the capping arrangement 104 on the array 101. The capping arrangement 104 has a main part 108 and a plurality of downwardly extending edge members 110 on the main part 108. The capping arrangement also includes securing means 112, which comprise straps provided with hooks for engaging the pallet.

The securing means 112 further includes mechanisms housed within the main part 108 for tightening the straps when the hooks engage the pallet, and for retracting the straps. The

securing means is described in more detail in GB2402380.

The capping arrangement 104 is disposed on the upper containers 10 of each set 102. The lid arrangements 16 of the upper containers are in their open position, and the capping arrangement 104 is disposed on the upper containers 10 so that the edge members 110 are received by, and located in, the locating recesses 56 in the upper edge 54 of the third and fourth upstanding walls 20.

The provision of the locating recesses allows the capping arrangement 104 to secure the containers 10 in the array 101 to one another and to the pallet 106 upon which they are disposed. This can be advantageous when it is desired to transport an array of nested containers on a pallet; the capping arrangement can be disposed on the uppermost containers of the array, and can secure the array to the pallet.

[0038] Notwithstanding the above, it will be appreciated that a capping arrangement could be provided on an array 101 that is not disposed on a pallet.

[0039] Figures 11 and 12 show a further container arrangement 100 which comprises an array of seven containers 10 nested within one another, as shown. It will be appreciated that any suitable number of the containers 10 could form the container arrangement 100. Each of the lid arrangements 16 is in the open position. The lid arrangements 16 of the lowermost container 10 extend vertically downwardly from the hinges 17. The lid arrangements 16 of each of the other containers 10 also extend vertically downwardly by virtue of being aligned with the lid arrangements 16 on the corresponding sides of the lowermost container 10.

[0040] As shown in Figures 11 and 12, the footprint of the container arrangement 100 is defined on the surface S by the area between the broken lines P1 in Figure 12, and the broken lines P2 in Figure 11. The broken lines P1 in Figure 11 are the same as the broken lines P1 in Figure 2. As can be seen from Figures 11 and 12, the footprint of the whole container arrangement 100 is the same as the footprint of the lowermost container

[0041] There is thus described a container arrangement 100 comprising a plurality of nested containers 10, where the lid arrangements 16 of all of the containers 10 lie substantially in a substantially straight line, thereby ensuring that the lid arrangements 16 extend outwardly from the walls 18 no further than the lid arrangements 16 of the lowermost container 10. There is also described a container 10 having a lid arrangement configured so that when a plurality of the containers 10 are disposed in a nested array, the lid arrangements of each container 10 are nested within each other, thereby extending in a substantially straight line.

[0042] Various modifications can be made without departing from the scope of the invention. For example, the container arrangement may comprise any suitable number of sets 102 of nested containers 10, which may be arranged in a 2 X 2 array, i.e. two rows, each row having two sets of containers, in which case, a larger capping arrangement may be required. Alternatively, the container arrangement 100 may comprise other suitable configurations of the sets 101 of nested containers 10.

[0043] In a further modification, the relative heights of the ribs 52 at different portions of the lid arrangements 16 can be varied. For example, in Figure 7, the ribs 52 are shown being of a greater height in the third lid portion 36 than in the second lid portion. In Figure 13 the lid arrangements 16, 16F of two nested containers are shown in their respective open positions aligned with each other. In the modification shown in Figure 13, the ribs 52, 52F in the first lid portions 30, 30F have a greater height than the ribs 52, 52F in the second lid portions 34, 34F.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- [GB2471969A](#) **[0003]**
- [GB2402380A](#) **[0015]** **[0037]** **[0037]**

Patentkrav**1. En beholderanordning (100) omfattende:**

første- og anden-beholdere (10, 10F), idet hver af den første og anden beholder (10, 10F) omfatter en basis (12), opretstående vægge (14) på basis (12) og en låganordning (16), som er svingbart fastgjort til i det mindste én af væggene (14) ved et hængsel (17);

idet hver låganordning (16) omfatter:

et hovedelement (22) med sideområder (40, 42) over for hinanden, idet hvert sideområde (40, 42) strækker sig fra hængslet (17), idet hvert sideområde har en proksimal ende ved siden af hængslet og en distal ende med afstand til hængslet, idet

den distale ende er forskudt indad i forhold til den proksimale ende, idet hvert sideområde (40, 42) omfatter en første sidedel og en anden sidedel;

et vægelement (44), der strækker sig langs hvert sideområde (40, 42) af hovedelementet (22); og

en fri kant med afstand til hængslet;

idet hver låganordning (16) kan roteres svingbart omkring hængslet (17) fra en lukket position til en åben position, hovedelementet (22) strækker sig over den respektive første eller anden beholders (10, 10F) åbne overside, når låganordningen (16) er i den lukkede position, og idet hver låganordning (16) strækker sig vertikalt nedad fra hængslet i det respektive lågs åbne position, idet den anden beholders (10F)

låganordning (16) kan optages i den første beholders (10) låganordning (16) i en stablet tilstand af låganordningerne; og

idet den anden beholder (10F) kan stables inden i den første beholder (10), når første beholders (10) låganordning (16) er i den åbne position;

kendetegnet ved en skulderformation (46) tilvejebragt mellem første og anden sidedel af hvert sideområde (40,42), idet hver første sidedel strækker sig fra den frie kant af låganordningen (16) til skulderformationen (46), og den anden sidedel strækker sig fra skulderformationen (46) til hængslet (17), idet første sidedel af hvert sideområde er forskudt indad fra den respektive anden sidedel af hvert sideområde;

og desuden **kendetegnet ved, at** hver beholders (10, 10F) låganordning (16) er

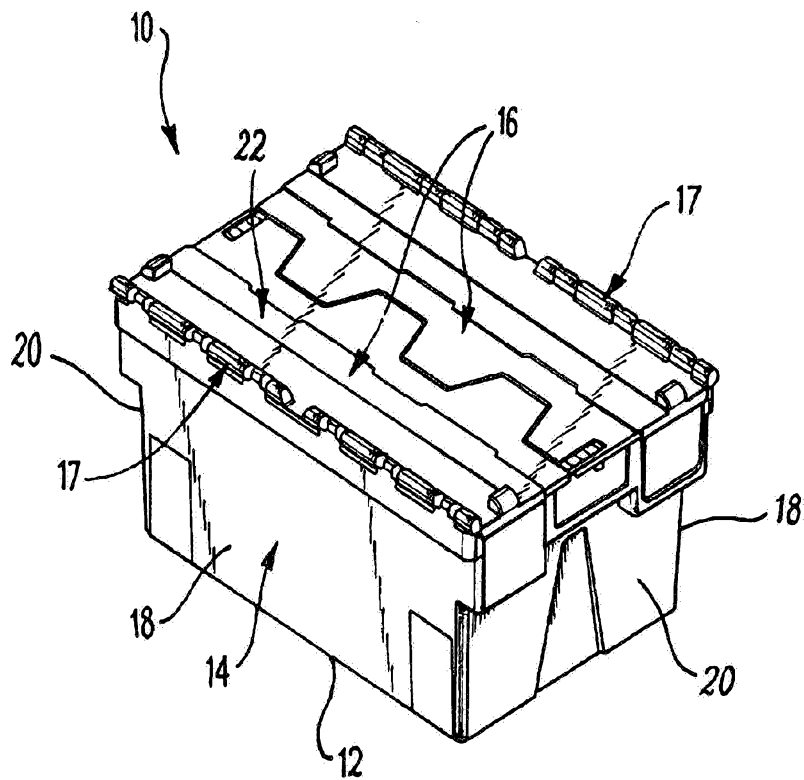
udformet sådan, at når beholderne (10, 10F) er stablet inden i hinanden, kan låganordningen (16) på den anden beholder (10F) roteres omkring hængslet (17) med en åbningsvinkel på mindst 270° fra den lukkede position til den åbne position, således at den anden beholders (10F) låganordning (16) er justeret efter den første beholders (10) låganordning (16), og i det mindste en del af hovedelementet (22) på den anden

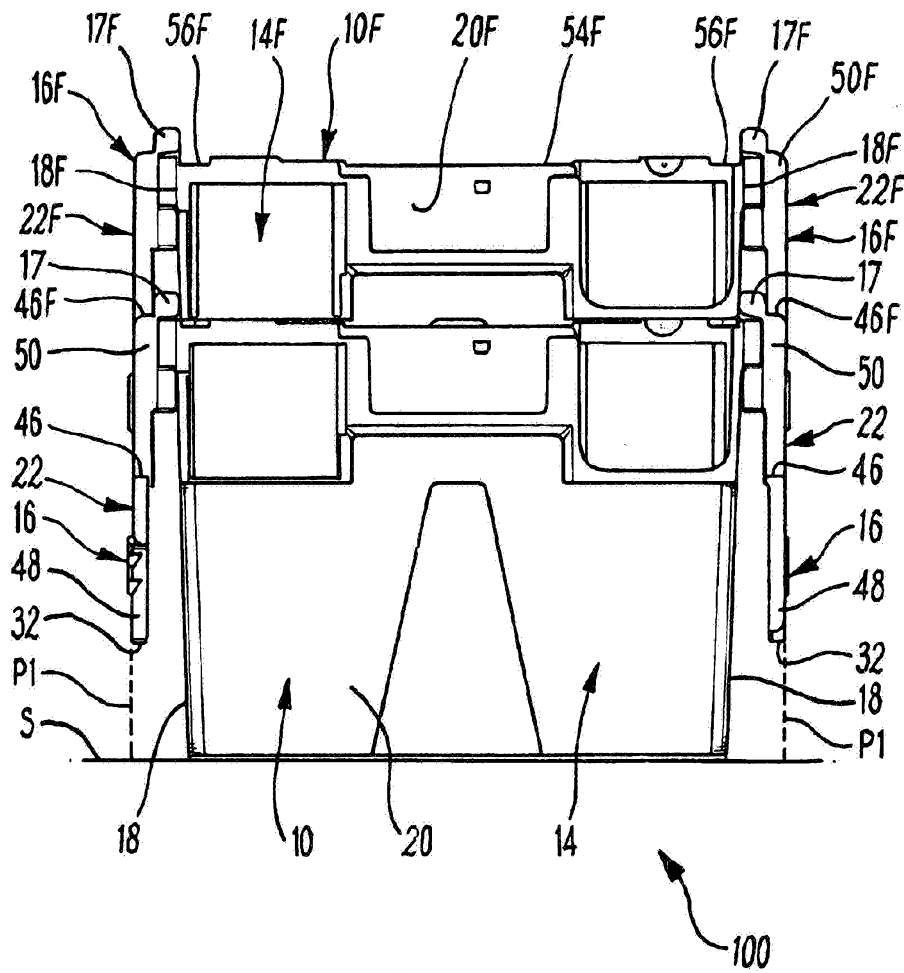
beholders (10F) låganordning (16) kan optages mellem vægelementerne (44) på den første beholders (10) låganordning (16).

2. En beholderanordning (100) ifølge krav 1, idet hver beholder (10, 10F) definerer en grundflade for åben position, og idet hver beholders (10, 10F) låganordning (16) er udformet sådan, at når de er stablet inden i hinanden, og når den anden beholders (10F) låganordning (16) er i åben position, er beholderanordningens (100) åben positions-grundflade lig med den første beholders åben positions-grundflade (10).
3. En beholderanordning (100) ifølge krav 1 eller 2, idet hver låganordning (16) omfatter en optagsformation (24), og hver låganordning (16) indeholder en forstærkningsformation 52, idet optagsformationen (24) på første beholders (10) låganordning (16) er udformet til at optage forstærkningsformationen 52 på den anden beholders (10F) låganordning (16).
4. En beholderanordning (100) ifølge krav 3, idet optagsformationen (24) omfatter en trininformation (26) tilvejebragt hen over hovedelementet (22) og strækkende sig på langs heraf.
5. En beholderanordning (100) ifølge krav 4, idet hovedelementet (22) omfatter en første lågdel (30), der strækker sig fra trininformationen (26) til låganordningens (16) frie kant (32), og en anden lågdel (34), der strækker sig fra trininformationen (26) mod hængslet (17), idet første lågdel (30) er forskudt fra den anden lågdel (34) med henblik på at strække sig over den øvrige låganordnings (16) forstærkningsformationer (52).
6. En beholderanordning (100) ifølge krav 5, idet hovedelementet (22) desuden indeholder en anden trininformation (28) og en tredje lågdel (36), idet den anden trininformation (28) er tilvejebragt mellem hovedelementets (22) anden og tredje lågdel (34, 36), idet den tredje lågdel (36) strækker sig fra den anden trininformation (28) mod hængslet (17).
7. En beholderanordning (100) ifølge krav 6, idet den anden lågdel (34) er forskudt fra den tredje lågdel (36), og den anden lågdel (34) kan strække sig over hængslet (17) på den anden beholder (10F).
8. En beholderanordning (100) ifølge krav 5, 6 eller 7, idet skulderformationen (46) er tilvejebragt på vægelementet (44), idet vægelementet (44) omfatter første og anden vægdel (48,

50) forskudt fra hinanden på modsatte sider af skulderformationen (46), idet første vægdel (48) strækker sig fra den frie kant til skulderformationen (46), og den anden vægdel (50) strækker sig fra skulderen til hængslet (17).

- 5 **9.** En beholderanordning (100) ifølge krav 8, idet den første vægdel (48) er forskudt indad fra den anden vægdel (50)
- 10 **10.** En beholderanordning (100) ifølge krav 8 eller 9, idet den første vægdel (48) på den første beholders (10) låganordning (16) er placeret inden for den anden vægdel (50) på den anden beholders (10F) låganordning (16), når låganordningerne (16) er stablet inden i hinanden.
- 15 **11.** En beholderanordning (100) ifølge et hvilket som helst af de foregående krav, idet hver beholder (10, 10F) omfatter en første og anden modstående opretstående væg (14), og to låganordninger (16), idet hver låganordning (16) er svingbart fastgjort med hvert sit hængsel (17) til første og anden opretstående væg (14) på beholderen, og idet i det mindste en af de opretstående vægge (14) definerer en positionsfordybning til optagelse af et kantområde af en dækselanordning, idet den eller de opretstående vægge hver har en overkant, og idet positionsfordybningen er defineret i overkanten.

DRAWINGS**Fig. 1**

**Fig. 2**

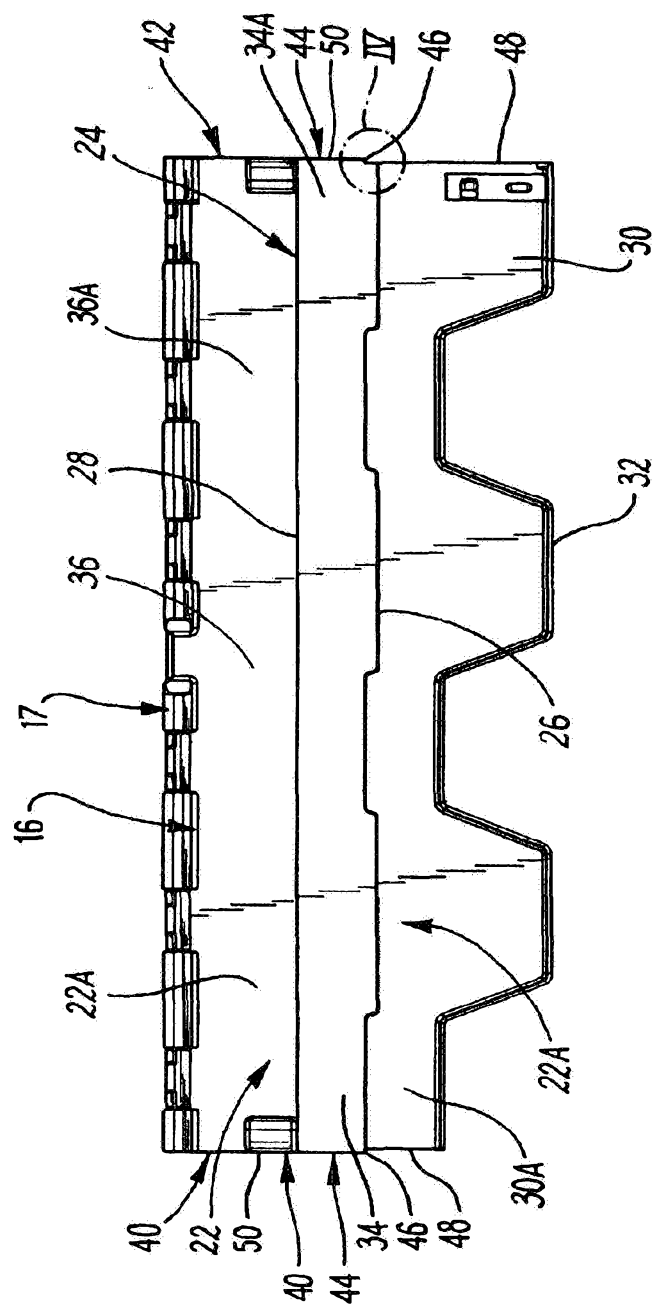


Fig. 3

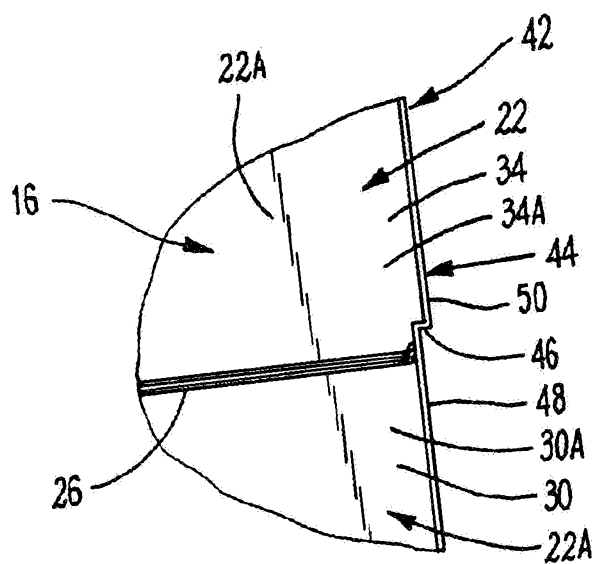
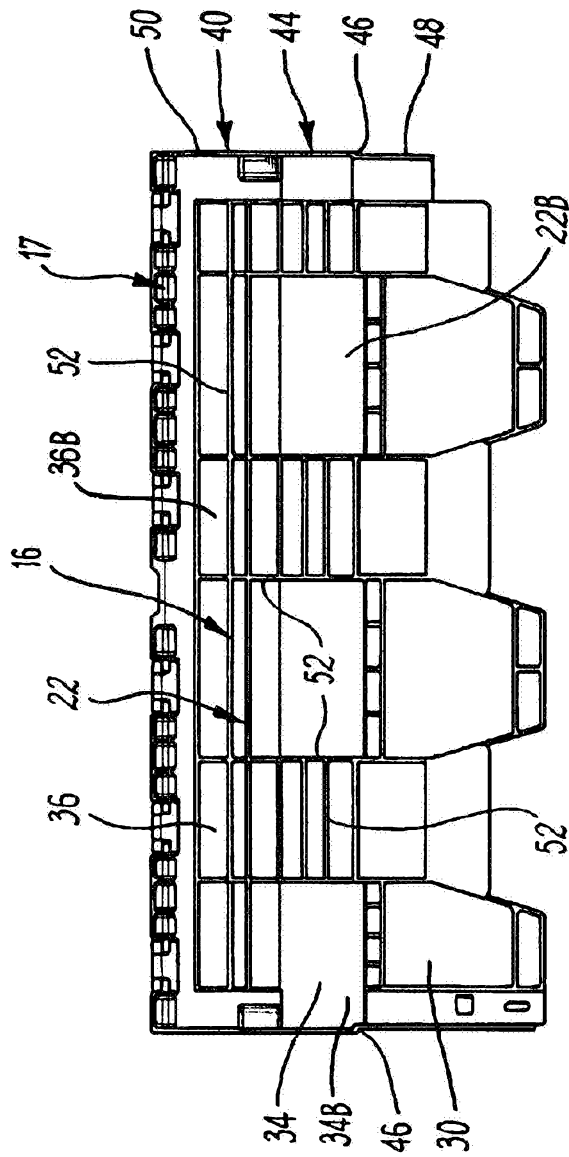


Fig. 4

**Fig. 5**

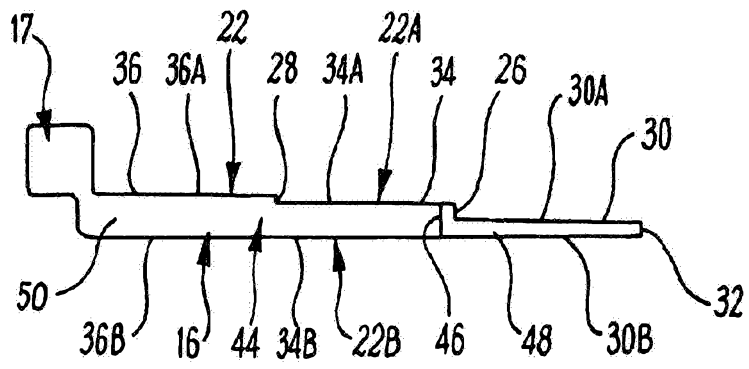


Fig. 6

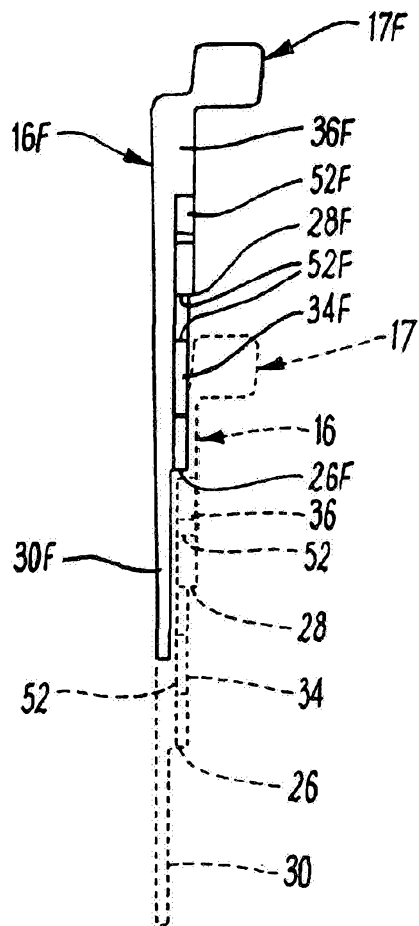


Fig. 7

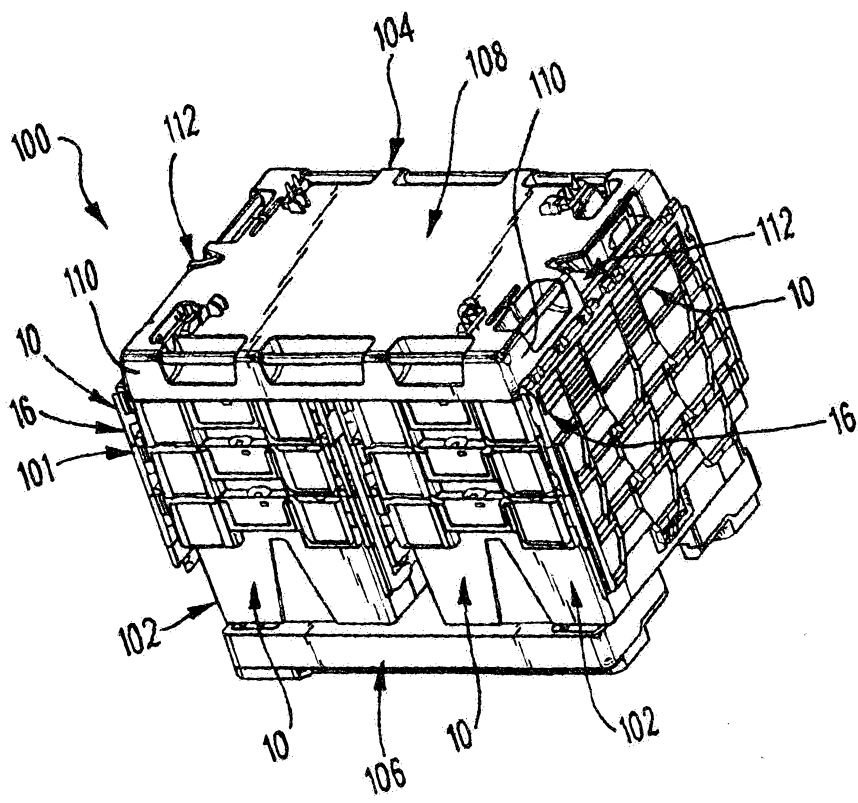
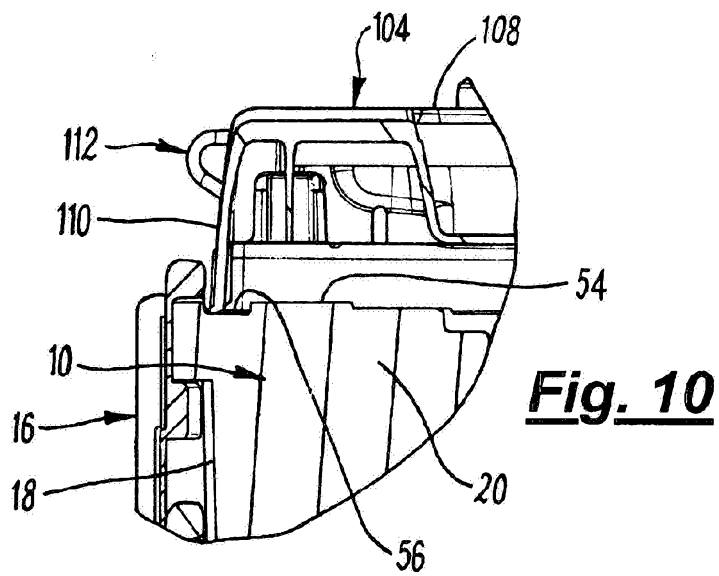
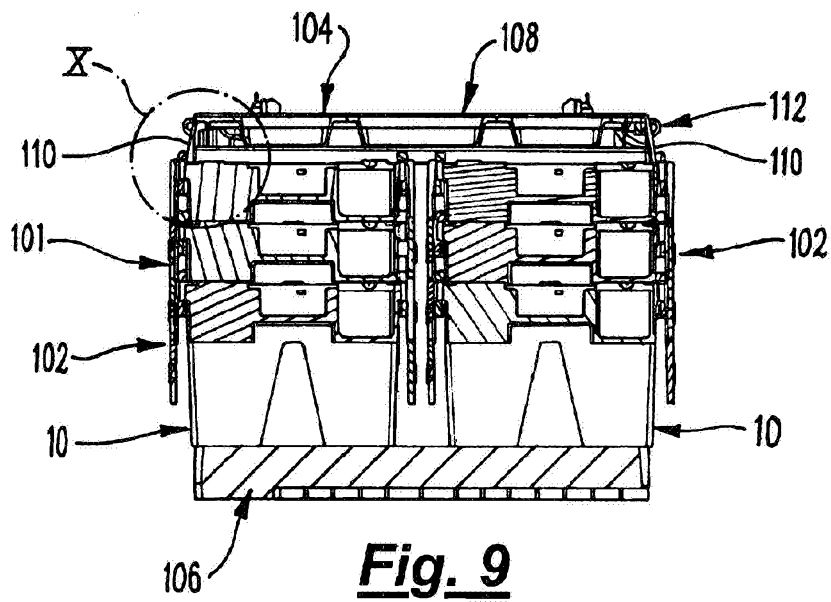


Fig. 8



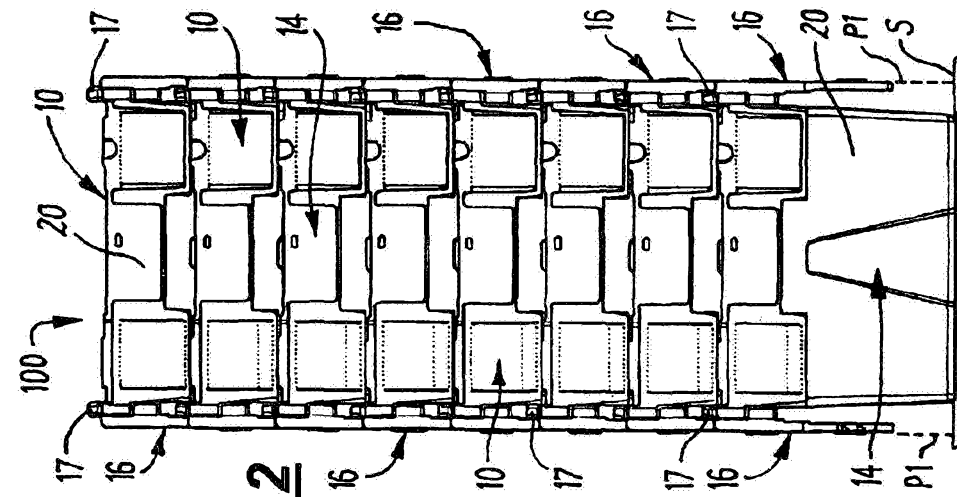


Fig. 11

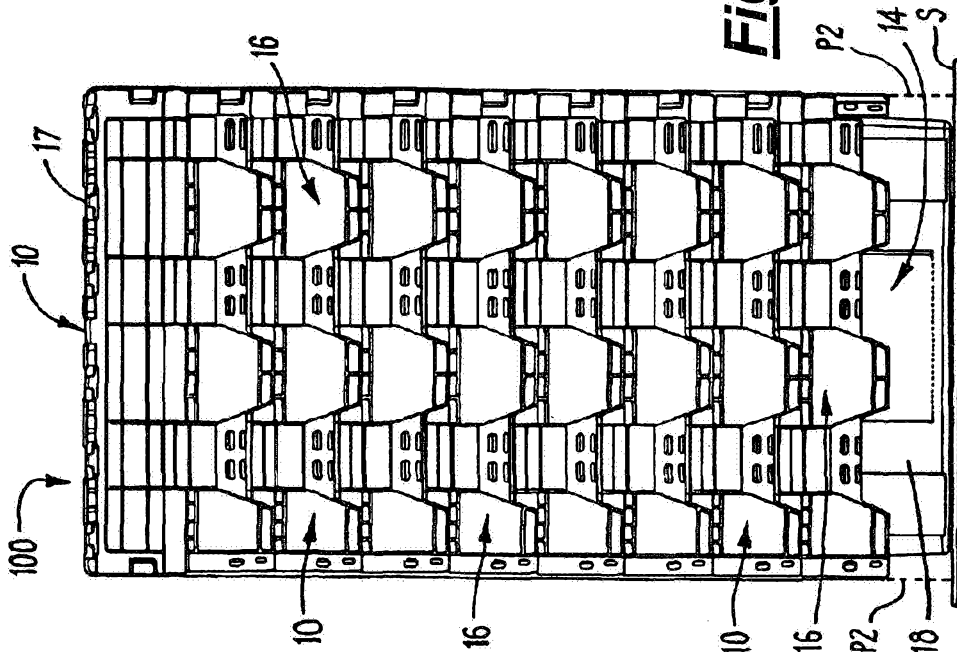


Fig. 12

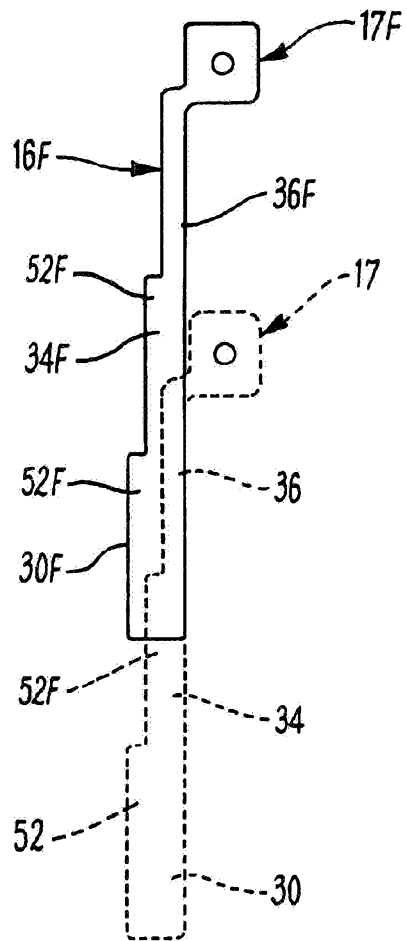


Fig. 13