(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 052 991 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.04.2009 Bulletin 2009/18

(21) Application number: **08253497.5**

(22) Date of filing: **27.10.2008**

(51) Int Cl.:
B65D 43/16 *(2006.01)* ***B65F 1/16*** *(2006.01)*
B65F 1/14 *(2006.01)*

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(30) Priority: **25.10.2007 US 982581 P**
18.01.2008 US 22178 P

(71) Applicant: **Rehrig Pacific Company**
Los Angeles, CA 90058 (US)

(72) Inventor: **Meissen, Cynthia R**
Atlanta
Georgia 30345 (US)

(74) Representative: **Chave, Lynne Fiona et al**
Urquhart-Dykes & Lord LLP
New Priestgate House
57 Priestgate
Peterborough
Cambridgeshire PE1 1JX (GB)

(54) **Container with removable rim**

(57) A container having a rim removably connected to the upper edge of the container. The rim can be formed in various configurations from a single mold using mold inserts. The various rim configurations accommodate different lids. Providing the mold inserts on the rim (which is a very shallow part) is much simpler than providing such inserts an the container itself.

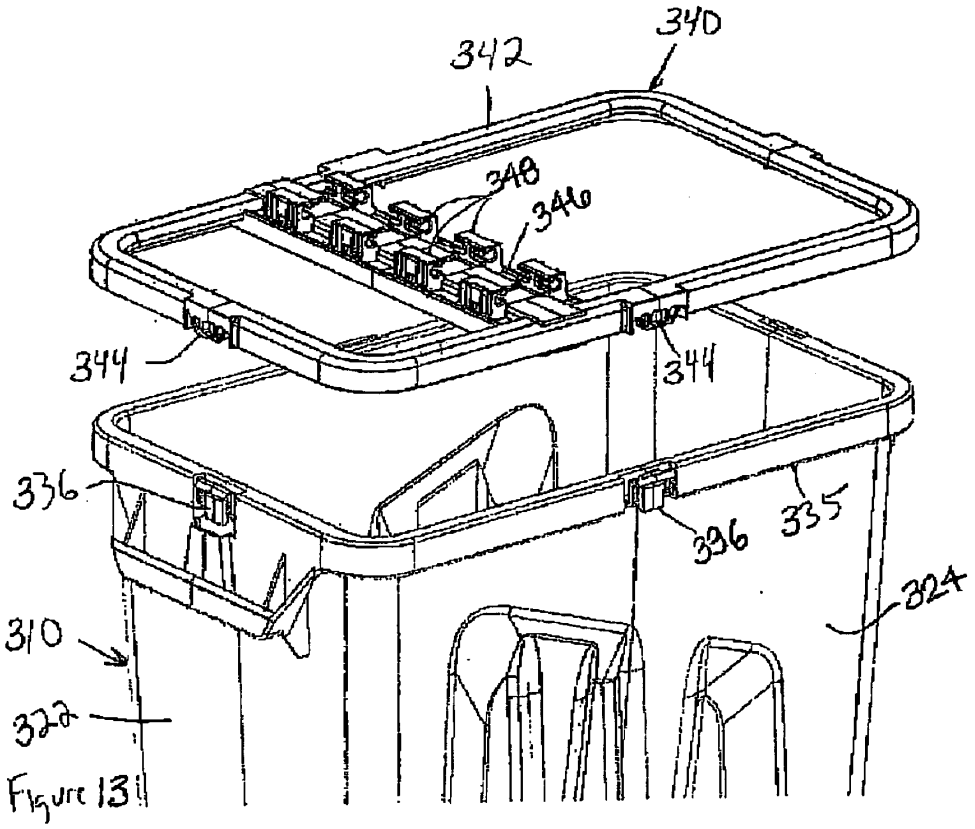


Figure 13

EP 2 052 991 A2

Description

[0001] This application claims priority to U.S. Provisional Application Serial Nos. 60/982,581, filed October 25, 2007 and 61/022,178, filed January 18, 2008.

BACKGROUND

[0002] The present invention relates generally to containers with removable lids, in particular, containers and lids that are particularly useful for disposing of medical products.

SUMMARY

[0003] The present invention provides a plurality of various individually inventive containers, which are described in detail below and shown in the drawings. Additionally, the present invention provides an inventive group or system of containers and system and method for making a plurality of different containers from a minimum number of molds, with some inserts. Generally, multiple container sizes can be provided from the same mold utilizing inserts to reduce the size of the mold.

[0004] In one embodiment, to accommodate various lid designs, the present invention provides a rim that is connected to the upper edge of the container. The rim can be formed in various configurations (described below) from a single mold using mold inserts. The various rim configurations accommodate different lids. Providing the mold inserts on the rim (which is a very shallow part) is much simpler than providing such inserts on the container itself.

[0005] These and other features of the application can be best understood from the following specification and drawings, the following of which is a brief description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Figure 1 is a perspective view of a container according to a first embodiment.

[0007] Figure 2 is a perspective view of a container according to a second embodiment, nested in a similar container.

[0008] Figure 3 illustrates the container of Figure 2 with the lid removed.

[0009] Figure 4 is an enlarged view of the hinge area of the container of Figure 2.

[0010] Figure 5 is bottom perspective view of an alternate version of the container of Figure 2.

[0011] Figure 6 illustrates an alternate lid.

[0012] Fi gure 7 is a perspective view of a container according to a third embodiment and alternate lid.

[0013] Figure 8 illustrates the container of Figure 7 with the lid open.

[0014] Figure 9 illustrates a container assembly according to a fourth embodiment.

[0015] Figure 10 illustrates the container assembly in another position.

[0016] Figure 11A is a perspective view of the base of Figure 9.

[0017] Figure 11B is a side perspective view of the base of Figure 11A.

[0018] Figure 11C is a bottom perspective view of the base of Figure 11A.

[0019] Figure 11D is a bottom view of the base of Figure 11A.

[0020] Figure 12 is a perspective view of a plurality of stacked bases.

[0021] Figure 13 is an exploded view of the container of Figure 9 with a first rim.

[0022] Figure 14 shows the first rim of Figure 13 mounted to the container.

[0023] Figure 15 illustrates a jig for removing the rim from the container of Figure 14.

[0024] Figure 16 illustrates the container and rim of Figure 14 being inserted into the jig of Figure 15.

[0025] Figure 17 illustrates a first step in removing the rim from the container with the jig.

[0026] Figure 18 illustrates a second step in removing the rim.

[0027] Figure 19 illustrates a third step in removing the rim.

[0028] Figure 20 illustrates the rim connected to a pair of lids on the container.

[0029] Figure 21 illustrates the rim and lids of Figure 20.

[0030] Figure 22 is an exploded view of the rim and lids of Figure 21.

[0031] Figure 23 is an exploded view of the rim with an alternate crossbar and lids.

[0032] Figure 24 is an assembled view of the rim and lids of Figure 23.

[0033] Figure 25 illustrates the container of Figure 9, a similar smaller container and a second rim.

[0034] Figure 26 illustrates the second rim of Figure 25 with attached lids secured to the container.

[0035] Figure 27 is a perspective view of the second rim and open lids.

[0036] Figure 28 shows the second rim and lids with one lid closed.

[0037] Figure 29 shows the second rim and closed lids.

[0038] Figure 30 is an exploded view of a third rim and lids.

[0039] Figure 31 is an assembled view of the third rim and lids of Figure 30 in a closed position.

[0040] Figure 32 illustrates the third rim and lids of Figure 31 with the lids open.

[0041] Figure 33 illustrates a rim and lid according to another embodiment.

[0042] Figures 34A and 34B illustrate the rim and lid of Figure 33 in different positions during use.

[0043] Figures 35-37 illustrate the rim and lid of Figure 32 with an alternate tray.

[0044] Figure 38 illustrates a container with a rim and lids according to another embodiment.

[0045] Figure 39 shows the container of Figure 38 with the lids open.

[0046] Figure 40 is an exploded view of the rim and lids of Figure 38.

[0047] Figure 41 illustrates a container with a rim and lids according to another embodiment.

[0048] Figure 42 is an exploded view of Figure 41.

[0049] Figure 43 shows the lid of Figure 41, partially broken away.

[0050] Figure 44 shows the lid of Figure 31 during installation onto the rim and container.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0051] A container assembly for collecting medical waste according to a first embodiment of the present invention is shown in Figure 1. The medical waste could be biological material, medical devices, etc. Some medical devices, such as metal or Titanium-containing devices may be recycled. The container assembly includes a container 10 having a base wall 12, side walls 14, a front wall 16 and a rear wall 18. A lip 20 protrudes outwardly from the upper edge of the side walls 14, front wall 16 and rear wall 18. Handles 22 protrude outwardly from the front wall 16 and rear wall 18.

[0052] A lid 24 is pivotably secured to the container 10 by a hinge 26. Front latches 28 are integrally molded with the lid 24 and snap-fit to the lip 20 adjacent the front wall 16. Additional side latches 29 snap-fit to the lip 20 adjacent side walls 14. The front latches 28 are substantially difficult to unlatch by hand without a tool. A single front latch 28 could be used instead of two.

[0053] An alternate container assembly is shown in Figure 2 nested with a similar alternate container assembly. Each container assembly includes an alternate container 110, which is simply a taller version of the container 10 of Figure 1. The same lid 24 pivotably attached to the alternate container 110 in the same way.

[0054] Figure 3 shows the alternate container 110 without the lid 24. The upper end of the container 10 of Figure 1 would be similar. At the upper end of the rear wall 118, hinge pins 134 protrude laterally from an upwardly protruding hinge support 132. The side walls 114, front wall 116 and rear wall 118 are similar to their counterparts in the container 10 of Figure 1, but taller.

[0055] Figure 4 illustrates the upper end of the container 110 with the lid 24 open. The hinge pins 134 are snap-fit into hinge receivers 38 formed on the lid 24. The connection to the container 10 of Figure 1 would be similar.

[0056] A second alternate container 110A, is shown in Figure 5. The second alternate container 110A is identical to the container 110 of Figures 2-4, with the exception of the base wall 112A. The base wall 112A in Figure 5 includes a drag rail 140A protruding downwardly from the periphery of the base wall 112A. A plurality of ribs 142A extend across the base wall 112A. A similar base wall 112A could be formed on the container 10 of Figure 1. Generally, the base walls 12, 112 of the containers 10, 110 of Figures 1-4 could be used with disposable containers, while it might be preferable to use the base wall 112A with reusable containers. In fact, disposable and reusable versions of the containers could be formed in the same mold, by adding an insert into the mold that forms the drag rails 140A and ribs 142A.

[0057] Figure 6 illustrates an alternate lid 124. In Figure 6, the lid 124 is shown on container 110, but is interchangeable and could be used on containers 10, 110A, and any other container in this application. The lid 124 is substantially similar to the lid 24 of Figure 1, including front latches 128 and is pivotably connected to the container 110 by a hinge 126. However, the lid 124 includes a central opening 144 therethrough so that medical waste can be dropped into the container 110 through the opening 144. The lid 124 further includes an integrally molded cap 146 adapted to snap-fit to a peripheral rib around the opening 144. The cap 146 is connected to the lid 124 via an integrally molded tether 148. The lid 124 of Figure 6 would have particular use for chemotherapy waste, such as syringes, platelets, etc., in which case the entire container assembly and contents may be periodically gathered and incinerated.

[0058] An alternate container 210 and alternate lid 224 are shown in Figure 7. Again, all lids and containers in this application are interchangeably useable. The alternate container 210 is identical to the container 110 and additionally includes wheels 50. The wheels 50 are within the envelope of the container 210 such that the container 210 is still nestable within a similar container 210 when empty.

[0059] The lid 224 includes a rear portion 252 and a front portion 254 connected via a living hinge 256. The side latches 229 secure the rear portion 252 to the container 210, while the front latches 228 further secure the front portion 254 to the container 210.

[0060] As shown in Figure 8, the front portion 254 of the lid 224 can be opened without opening the rear portion 252. Medical waste can be placed in the container 210 via the opened front portion 254, which can then be reclosed. As is also shown in the lid 224, a gasket 256 may be formed around the periphery of the lid 224 so that it seals with the container 210. Of course, the gasket 256 could be formed on any of the lids disclosed in this application. Similarly, the wheels 50 could be used on any of the container disclosed in this application. Again, this container assembly could be made reusable or disposable.

[0061] Figure 9 shows a container assembly including a container 310 and a support 312. The support 312 includes a base portion 314 up from which extend a front wall 316 and rear wall 318, defining therebetween a channel 320. The container 310 may be an injection molded container 310 having end walls 322 and side walls 324 and a base wall 326 opposite a container opening.

[0062] The support 312 may optionally include castors

315, which may be snap-fit or otherwise removably secured to the support 312. The rear wall 318 of the support 312 includes spaced apart pillars 332 between which is defined a rear channel 330- As shown in Figure 9, the container 310 can be supported on the support 312, with the base wall 326 of the container 310 received in the rear channel 330 and on the base portion 314 of the support 312 and secured between the pillars 332. One end wall 322 is tilted toward the front wall 316. In this position, the container 310 is supported at an angle, with the base wall 326 supported by rear wall 318.

[0063] The container 310 and support 312 can also be configured as shown in Figure 10, in which the base wall 326 of the container 310 is disposed within the channel 320 between the front wall 316 and the rear wall 318 of the support 312. The side walls 324 are adjacent the front wall 316 and rear wall 318. in this configuration, the support provides stability to the container 310 and may be used as a dolly with the optional castors 315.

[0064] The support 312 is also preferably injection molded from a thermoplastic. The support 312 is shown in more detail in Figures 11A-11D. Referring to Figure 12, multiple supports 312 can stack on one another and partially nest with one another to reduce the overall stacking height and increase the stability of the stack.

[0065] The support 312 and container 310 arrangement is usable with all of the embodiments of containers, lids, etc. described below.

[0066] Referring to Figure 13, the container 310 may include a peripheral lip 335 protruding outwardly and then downwardly from upper most edges of the end walls 322 and side walls 324. At several locations, latches 336 are formed along the peripheral lip 335. This provides a removable connection to one of many optional rims, some of which will be described herein.

[0067] The first rim 340 is shown in Figure 13 and includes a peripheral portion 342 that is configured to fit over the peripheral lip 335 of the container 310. The rim 340 further includes latch portions 344 complementary to the latches 336 for removably securing the rim 340 to the container 310. The rim 340 further includes a crossbar 346 forming a chord across the peripheral portion 342. Two sets of hinge receivers 348 are formed adjacent openings in the rim 340 defined by the peripheral portion 342 and the crossbar 346.

[0068] As shown in Figure 14, the rim 340 is snap-fit onto the container 310 via the latch portions 344 and latches 336. The rim 340 (and any other rim described herein) may be secured to the container 310 over a plastic bag (not shown) inserted in the container 310 and draped over the upper edges of the container 310. If the rim 340 (or other rims below) includes a gasket, a leakproof seal can be provided at the rim/container interface with or without using a plastic bag.

[0069] The rim 340 is designed such that it cannot easily be removed from the container 310 by hand. Instead, a jig 350 is provided for removing the rim 40 from the container 310. The jig 350 is shown in Figure 15. The jig 350 may be metal, aluminum, or injection molded of a thermoplastic. The jig 350 includes a peripheral portion 352 up from which extend a plurality of fingers 354 which are tapered to be received behind the latches 336, as shown in Figure 16. When the container 310 is placed in the jig 350, the weight of the container forces the fingers 354 up behind the latches 336, as shown more clearly in Figures 17-19. The taper of the fingers 354 causes the latches 336 to deflect, thereby releasing the latches 336 from the latch portions 344 of the rim 340 and the rim 340 can be removed from the container 310 and either replaced (if damaged) or provided with a different type of rim (several potential designs of which are described herein). Because the jig 350 activates the latch from below, the jig 350 does not have to penetrate a lid or a rim to disengage the latch, which enhances the ability to resist leakage. The lids of Figures 1-8 could also be adapted to require the jig 350 for removal.

[0070] As shown in Figures 20-22, the rim 340 is connected to a pair of lids 360, 368 to form a lid assembly. The lids 360, 368 include integrally molded hinge portions 362 complementary to the hinge receiver portions 348 on the rim 340. One of the lids 360 includes an opening 364 therethrough, through which objects, such as sharps or other medical waste, can be inserted. A secondary lid 366 is hingeably connected to the hinge portion 362 and hinge receivers 348 to selectively cover the opening 364, as shown.

[0071] As shown in Figures 23 and 24, the rim 340 can also be provided with an off-center crossbar, which can occur with a different mold insert. This permits the attachment of different lids 370, 378. The lid 370 includes a large semicircular opening 372 having a matched semicircular portion 374 having semi-annular recesses 375 for accommodating a semicircular door 376. The door 376 is rotatably connected to the semicircular portion 374 for selectively closing the opening 372 through the lid 370.

[0072] Figure 25 illustrates the container 310 and a similar, smaller container 410. The smaller container 410 connects to the rims in the same manner as the larger container 310. The smaller container 410 can be made in the same mold as the container 310, through the use of mold inserts.

[0073] Figure 25 also illustrates a second rim 380 including a peripheral portion 382 from which a plurality of hinge receivers 384 extend upwardly. The second rim 380 and container 310 are shown in more detail in Figures 26-29. A pair of lids 386 having integrally molded hinge portions 388 are hingeably connected to the hinge receiver portions 384 on the container 310. In this embodiment, the containers 310 with attached rims 380 and lids 386 can be nested within similar containers 310 with attached rims 380 and lids 386, thus reducing shipping and storage space.

[0074] Figures 30-32 illustrate a third rim 390 having a cross member 396 with hinge receivers 394 formed thereon. In this case, a pair of identical lids 397 having

integrally molded hinge portions 398 are connected to the hinge receivers 394 on the rim 390. Again, the second rim 390 can be selectively connected to the container 310 (with or without the optional latch portion 344, Figure 16).

[0075] Figures 33, 34A and 34B illustrate a third rim 400. The rim 400 includes a peripheral portion 401 (for receiving the peripheral lip 335 of the container 310) and an upper wall 403 in which is formed an opening 404. A tray 402 is hingeably connected to the peripheral portion 401 of the rim 400 in the opening 404. The tray 402 preferably occupies all or substantially all of the opening 404 in the at rest position as shown in Figure 33 (i.e., the tray 402 pivots to this position due to gravity). The tray 402 includes an integrally molded handle portion 405 protruding over a portion of the upper wall 403. In use, a user places an object, such as a used medical device, in the tray 402, then, using the handle 405, pivots the tray 402 until the object is dumped into the container (Figure 34B). When released, the tray 402, due to gravity, then returns to it's at rest position, as shown in Figure 33.

[0076] An alternate tray 406 is shown in Figures 35-37. Whereas the tray 402 of Figures 33, 34A-B was completely opened above a plane near the axis of rotation of the tray 402, the tray 406 extends almost 270 degrees about the axis of rotation. This ensures that the opening 404 is always closed, no matter the position of the tray 406. A pair of handles 408 are provided to assist with dumping the tray 406 through the opening 404.

[0077] A fourth alternate rim 410 is shown in Figures 38-40. The rim 410 includes a peripheral portion 412 having integrally molded hinge receivers 414. A pair of identical lids 416 are hingeably connected to the hinge receivers 414 by integrally molded hinge portions 418. Each lid 416 includes a wide portion 420 extending across a midpoint of the container 310 and a narrow portion 422, complementary to the wide portion 420. This provides a wider (squarer) opening into the container 310 when only one lid 416 is flipped open. In this embodiment, the containers 310 with attached rims 410 and lids 416 can be nested within similar containers 310 with attached rims 410 and lids 416, thus reducing shipping and storage space.

[0078] An alternate assembly is shown in Figure 41-44, although certain features could be used in combination with those described above. An alternate container 310' includes integrally molded latch receivers 432 and an upper edge thereof around the container opening. A peripheral lip 446 protrudes outwardly and then downwardly from the upper edge of the container 310'. A lid 430 includes a plurality of integrally molded hinge portions 436 that are received between the hinge receiver portions 432 and hingeably connected thereto by an inserted metal rod 434. The opposite edge of the lid 430 is fitted (prior to insertion of the rod 434) onto the lip 446 or the container 310'. The lid 430 includes a peripheral lip portion 442 protruding outwardly and then downwardly from the upper edge of the lid 430. A hook portion 444 then protrudes inwardly and upwardly from the lip 442. The peripheral lip 446 of the container 310 is received between the hook 444 and the lip 442 of the lid 430 as shown in Figure 43. The lid 430 includes a threaded opening 448 therethrough into which is removably screwed a cap 440. The lid 430 in particular is useful for smaller items such as pharmaceutical items. Note that the lid 430 could also be provided as a rim-type design that snaps to the container 310 as described in previous embodiments.

[0079] In accordance with the provisions of the patent statutes and jurisprudence, exemplary configurations described above are considered to represent a preferred embodiment of the invention. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.

Claims

1. A container comprising:

a base;
at least one wall extending around the periphery of the base to define a container interior;
a rim removably secured to an uppermost edge of the wall; and
at least one lid removably secured to the rim to selectively cover at least a portion of the container interior.

2. The container of claim 1 wherein the rim includes a peripheral portion configured to fit over a peripheral lip on the uppermost edge of the wall, and wherein the rim includes integrally molded latch portions for removably securing the rim to the uppermost edge of the wall, the rim further including an integrally molded crossbar forming a chord across the peripheral portion, the crossbar including at least one integrally molded hinge element for pivotably connecting to the at least one lid.

3. The container of claim 1 wherein the rim includes a peripheral portion configured to connect to the uppermost edge of the wall, and wherein the peripheral portion of the rim includes integrally molded latch portions for removably securing the rim to complementary latch portions integrally formed with the wall.

4. The container of claim 3 further including a jig for concurrently releasing the latch portions from the complementary latch portions to remove the rim from the container.

5. The container of claim 1 wherein the rim includes a peripheral portion configured to connect to the uppermost edge of the wall and the rim includes an upper wall enclosing the rim around an opening, a

tray hingeably connected within the opening, such that the tray can pivot to dump contents of the tray into the container through the opening.

6. The container of claim 1 further including a door rotatably mounted to the lid, the lid having an opening therethrough, the door rotatable about an axis perpendicular to the opening through the lid to selectively open and cover the opening through the lid.

7. The container of claim 1 wherein the lid includes an opening therethrough, a cap removably threaded into the opening through the lid.

8. The container of claim I further including a rod hingeably connecting the lid to the rim.

9. The container of claim 1 further including a support on which the container is supported, such that when the container is placed on the support in a first position, the base of the container is at a first angle relative to a floor and when the container is placed on the support in a second position, the base of the container is at a second angle relative to the floor.

10. The container of claim 9 further including a plurality of castors extending down from the support.

11. The container of claim 9 wherein the support includes a base portion up from which extend a front wall and a rear wall defining a central channel therebetween, the rear wall having spaced apart pillars between which is defined a rear channel, wherein the base of the container is received in the central channel when the container is in the first position, and wherein the base of the container is received in the rear channel when the container is in the second position.

12. The container of claim 9 wherein the support is nestable with a similar support.

13. A system of containers including the container of claim 1 wherein the rim is one of a plurality of rims, each of different configuration, each providing different lid configurations, wherein each of the rims can be secured to the container.

14. The container of claim 1 further including an opening through the lid and further including a cap connected to the lid by an integrally molded tether, the cap removably securable over the opening through the lid.

15. The container of claim 1 wherein the container is nestable with similar containers when the rim is removed.

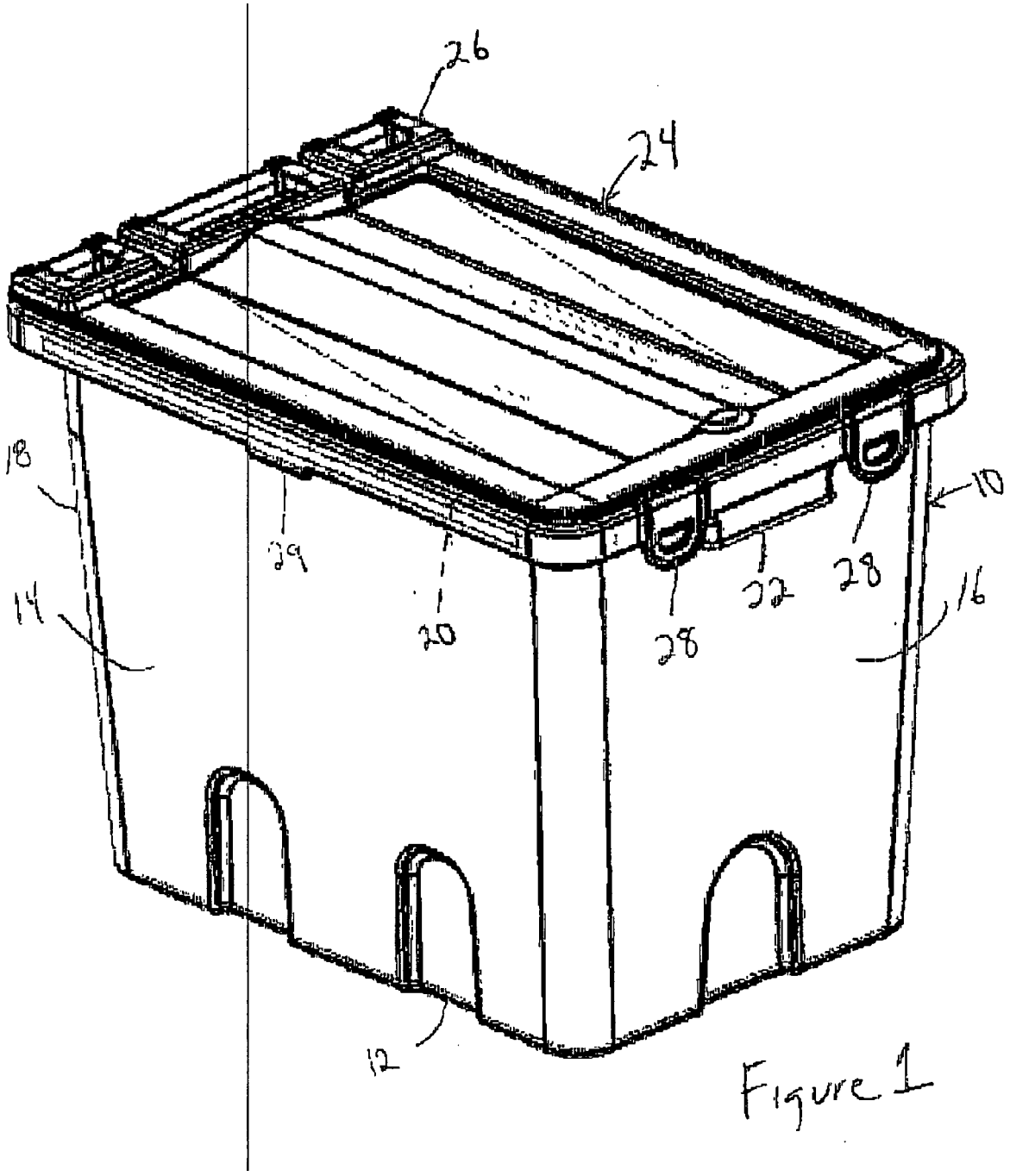


Figure 1

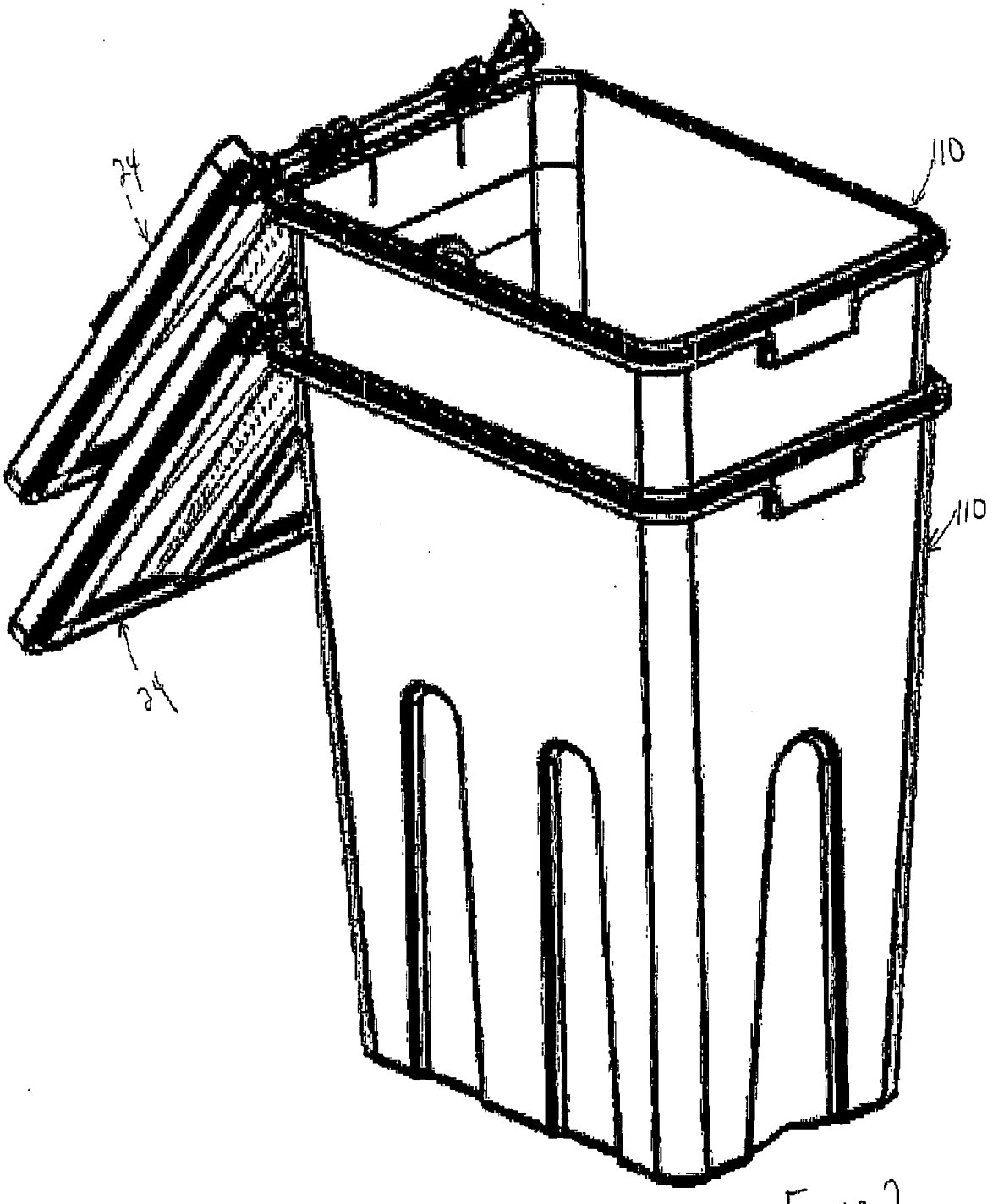


Figure 2

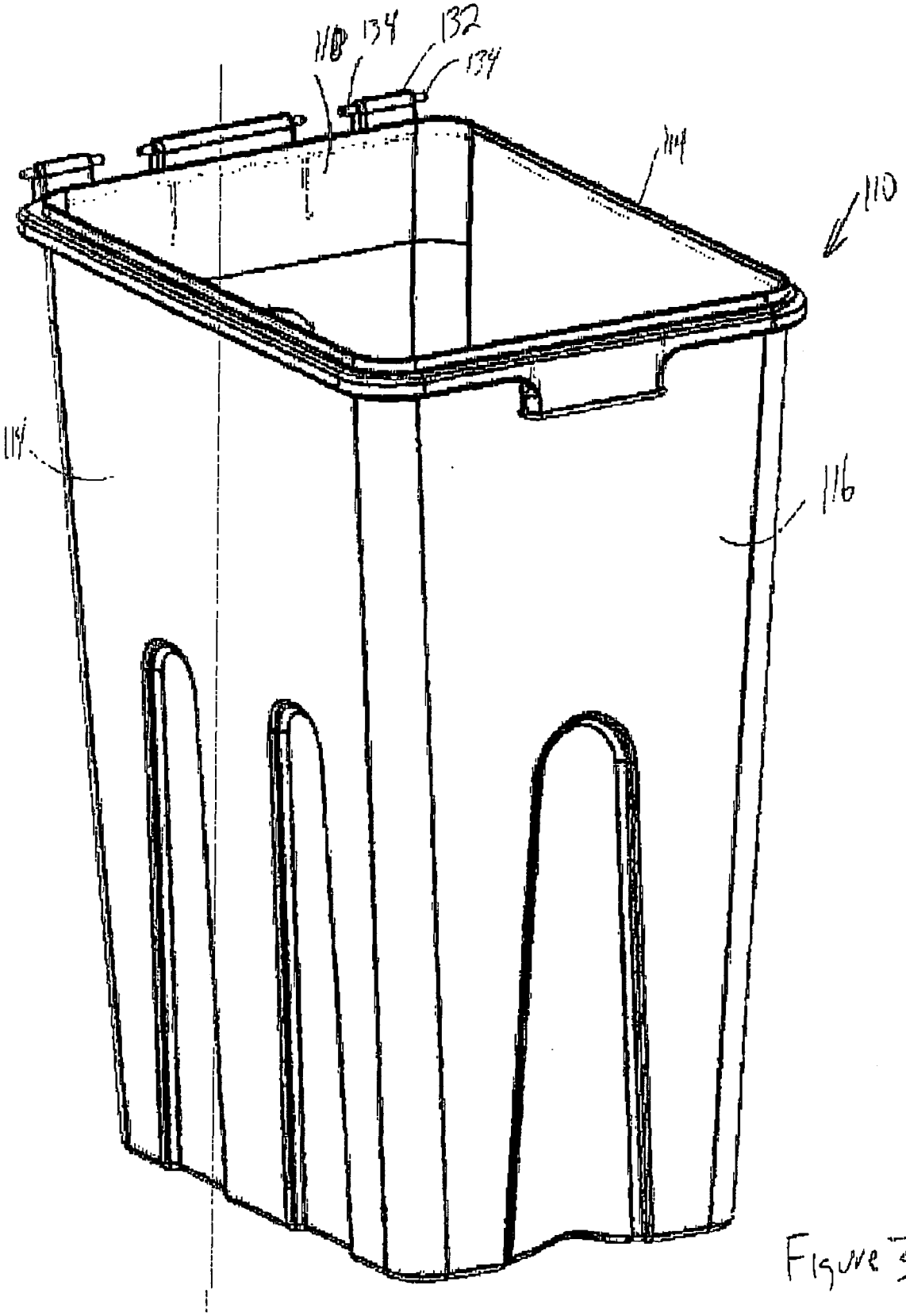


Figure 3

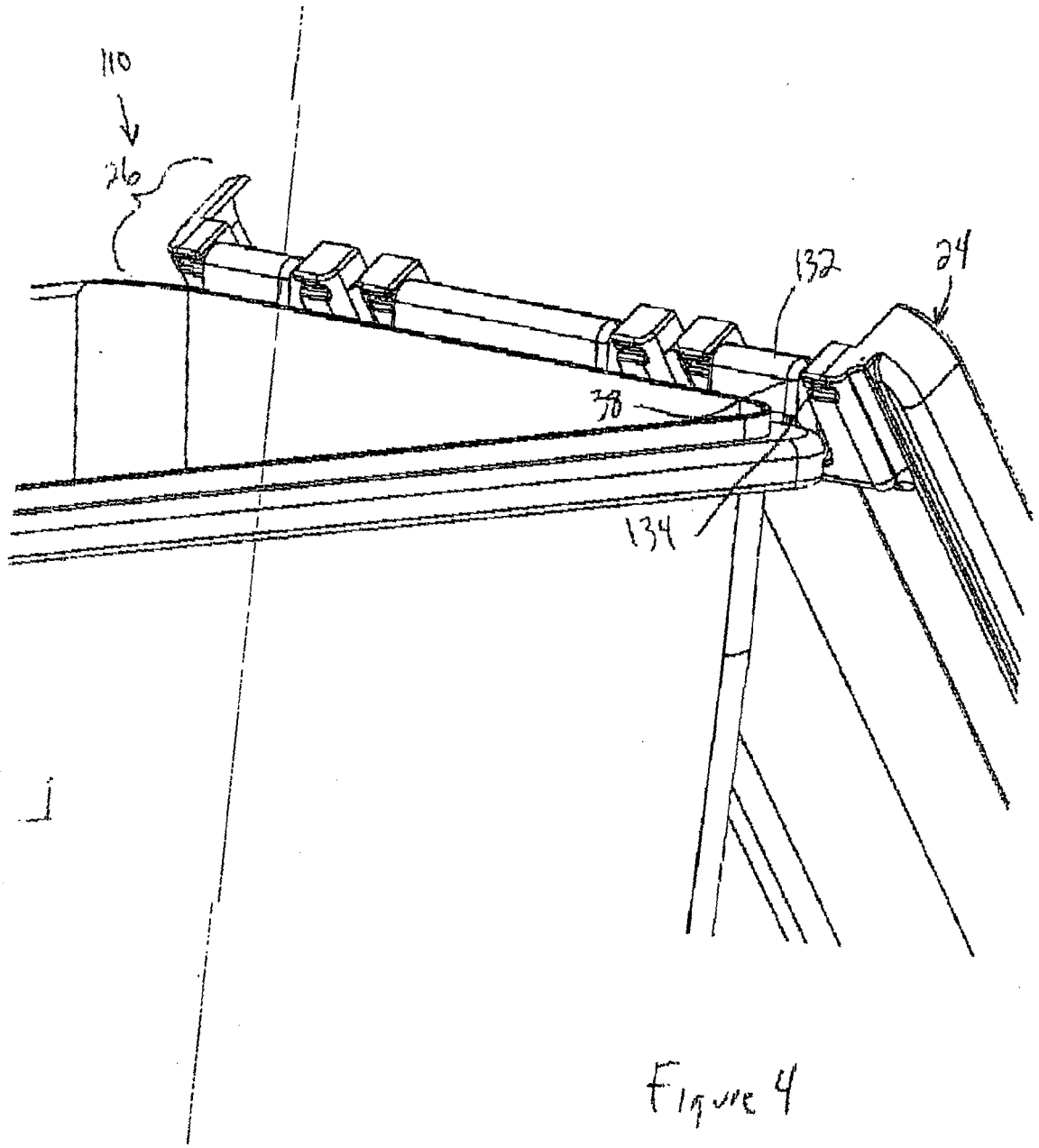


Figure 4

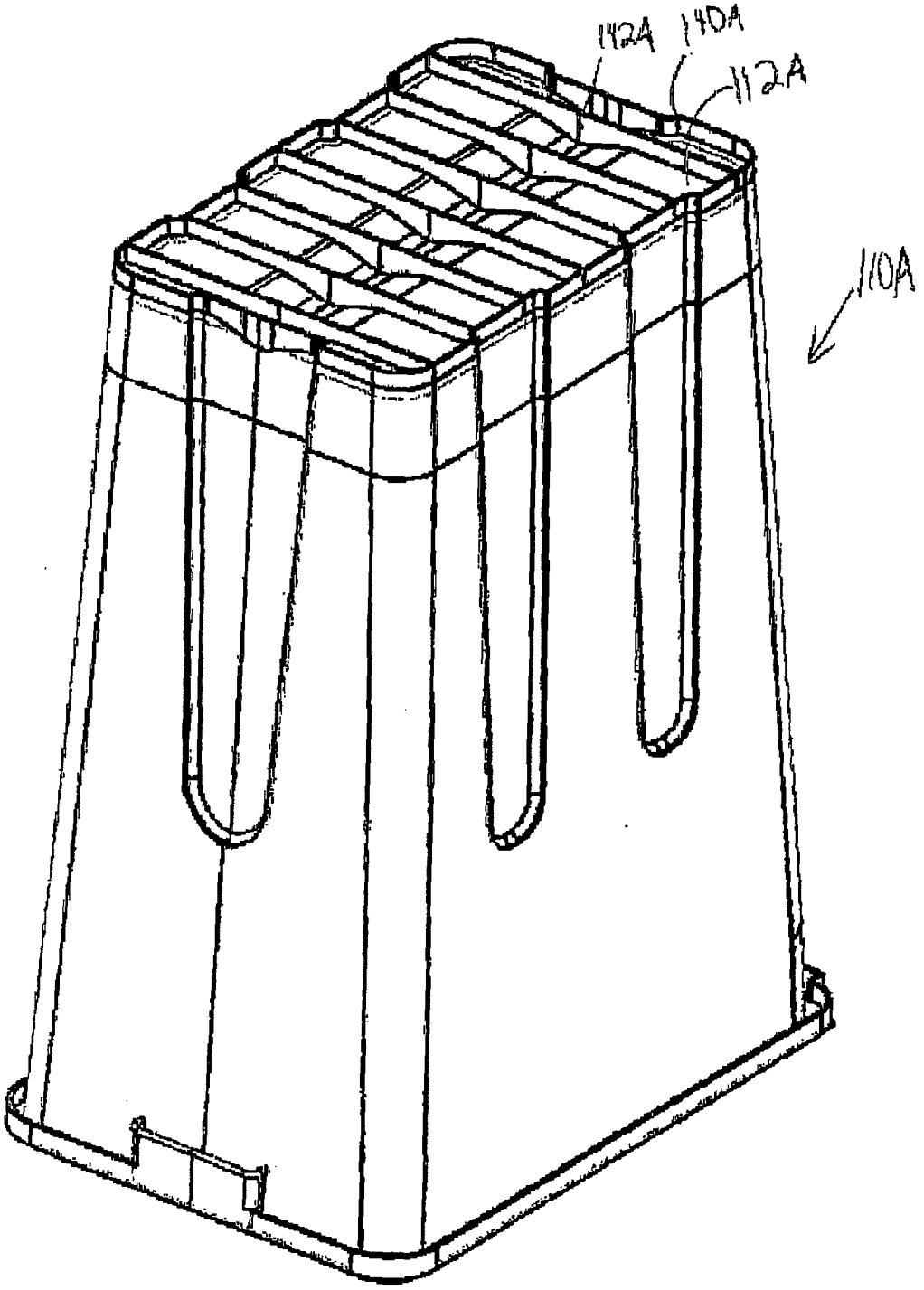


Figure 5

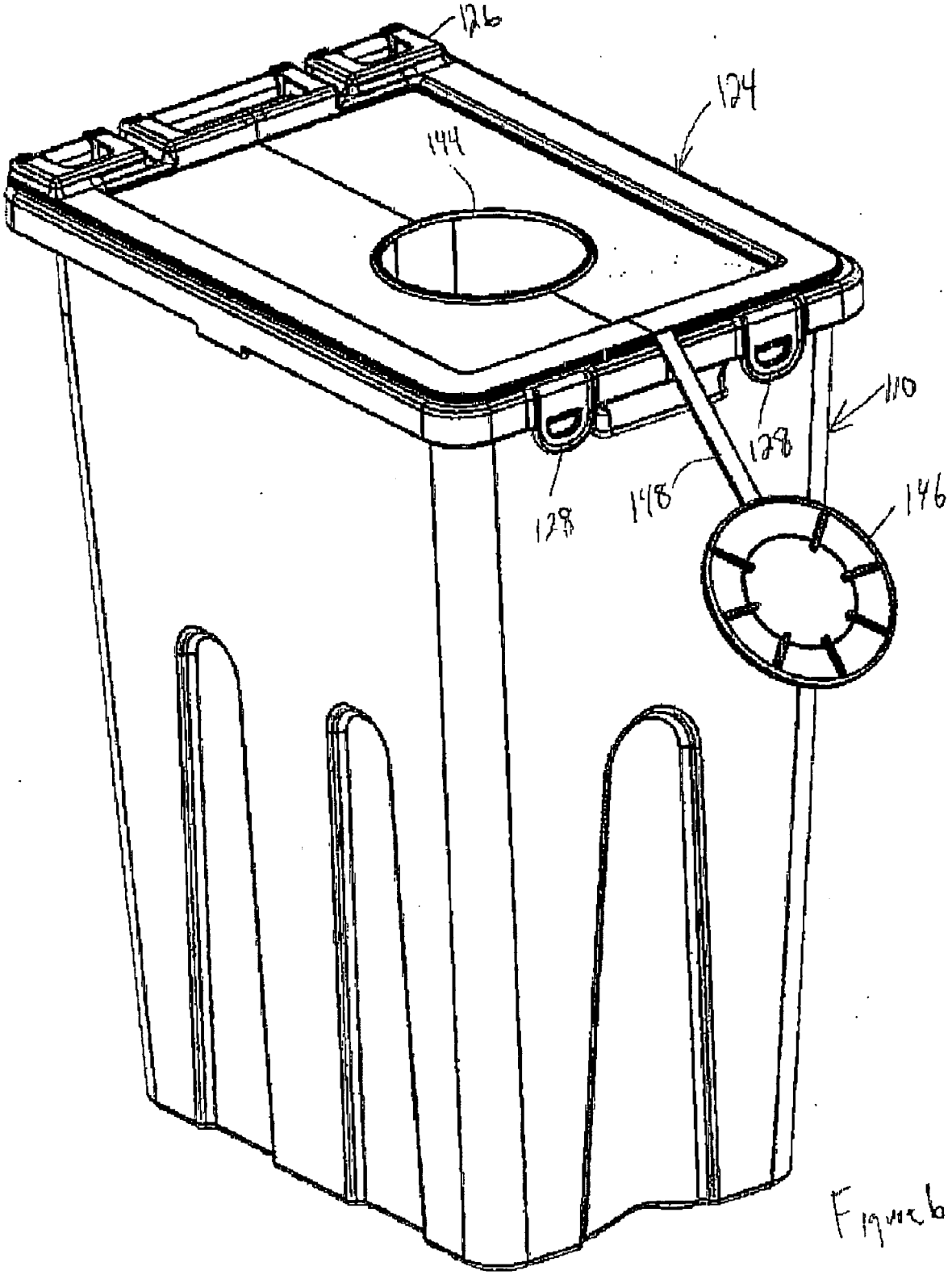


Figure 6

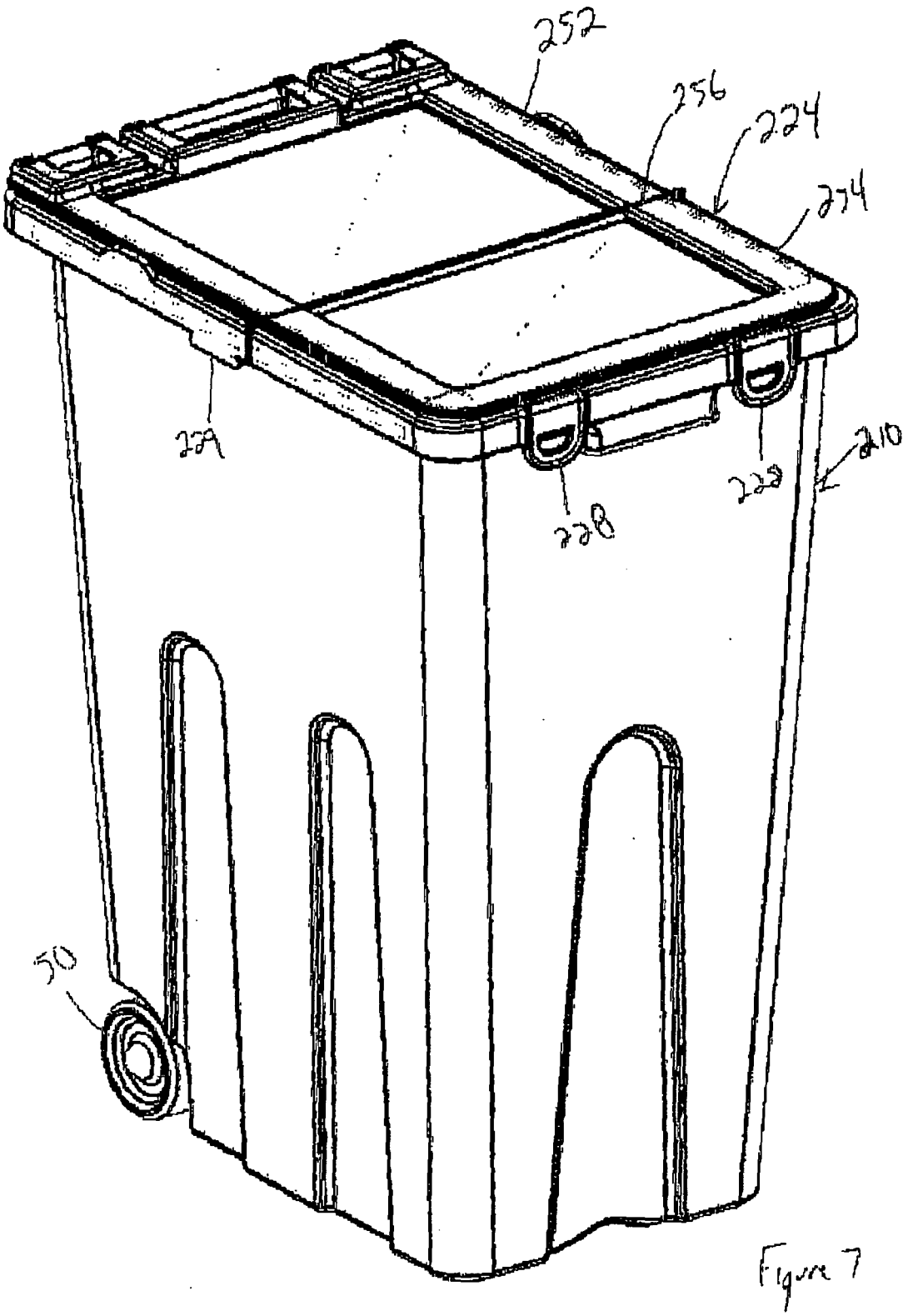


Figure 7

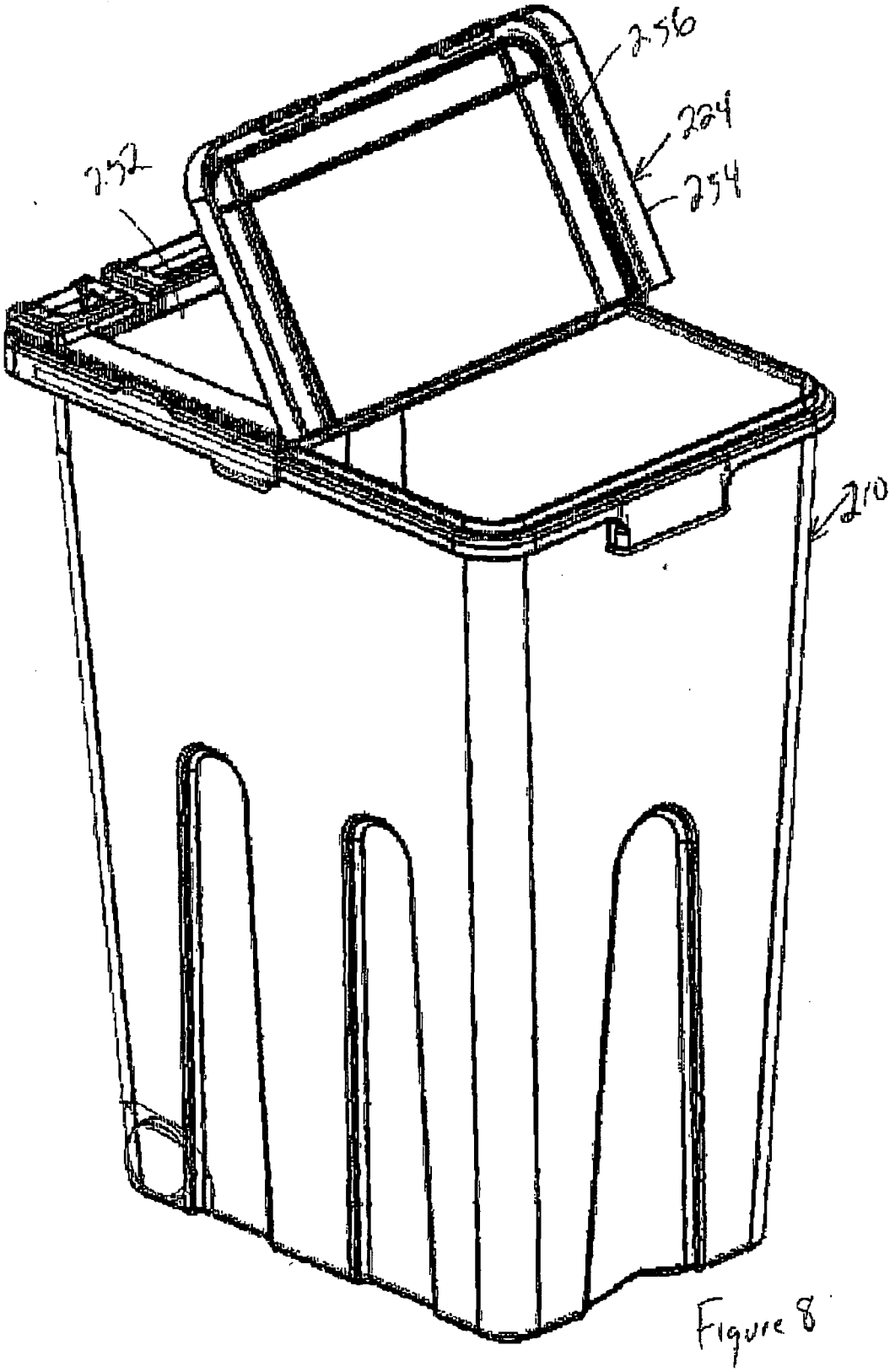
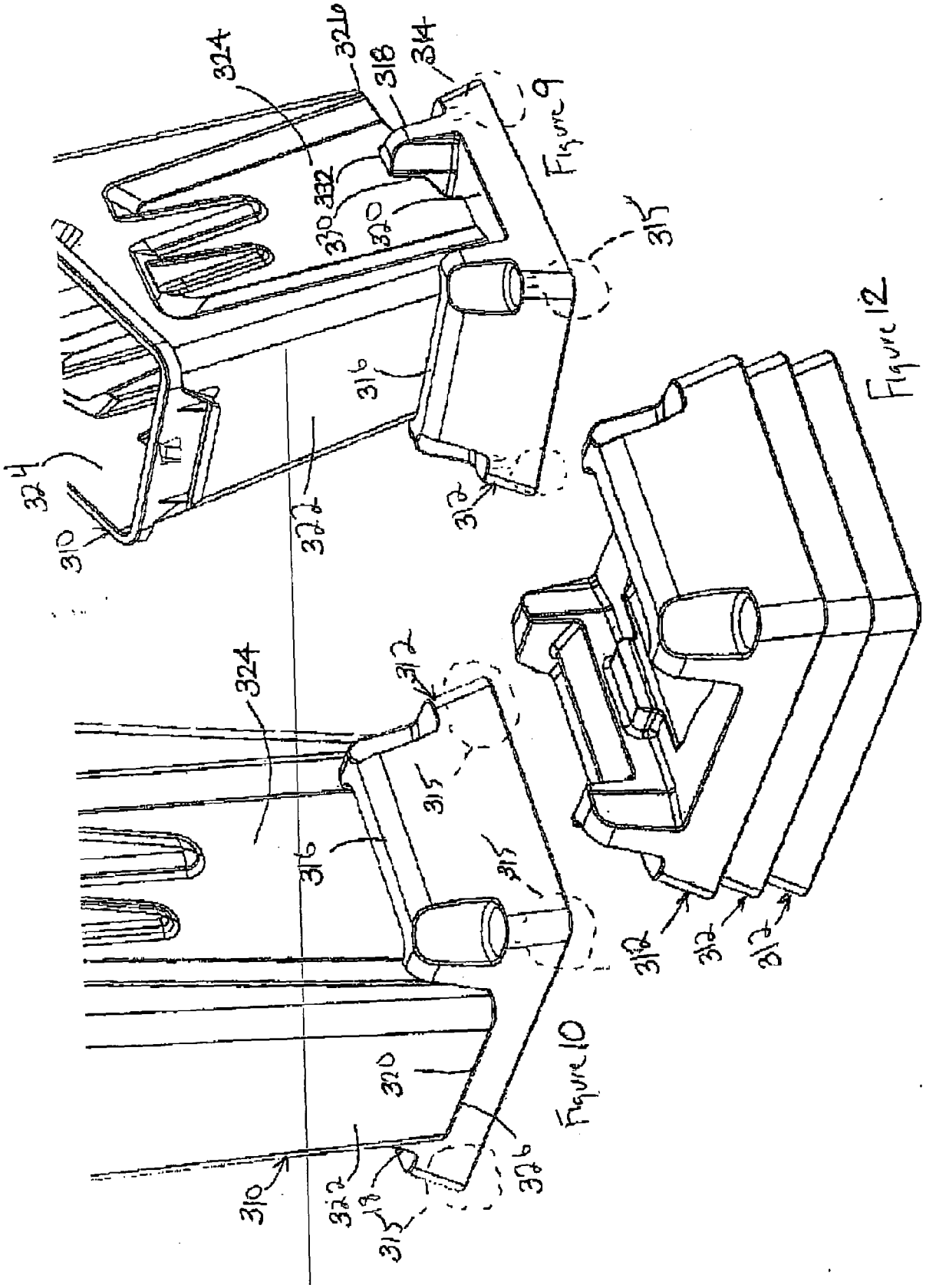


Figure 8


324
326
318
314
332
330
320
316
312
310
322
315
Figure 9
Figure 10
Figure 12

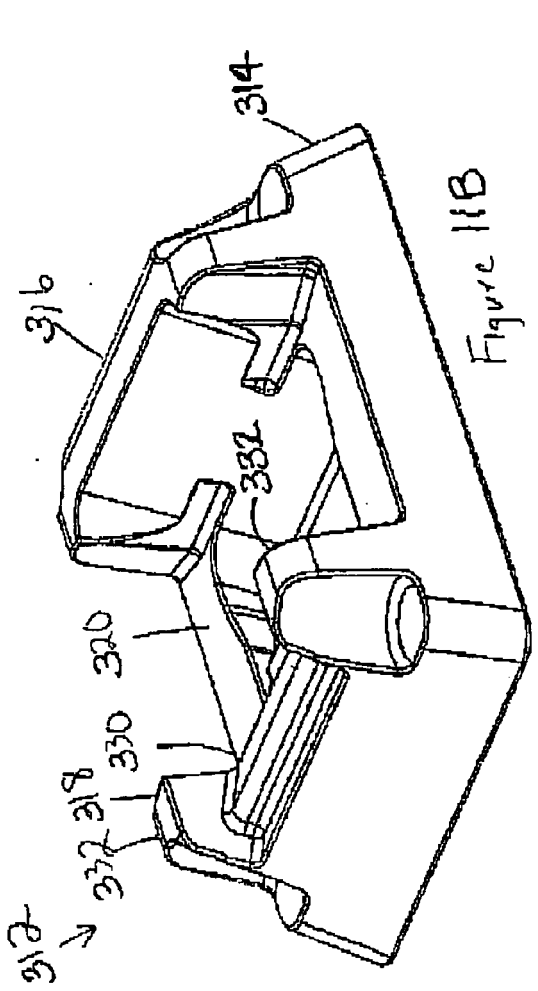


Figure 11B

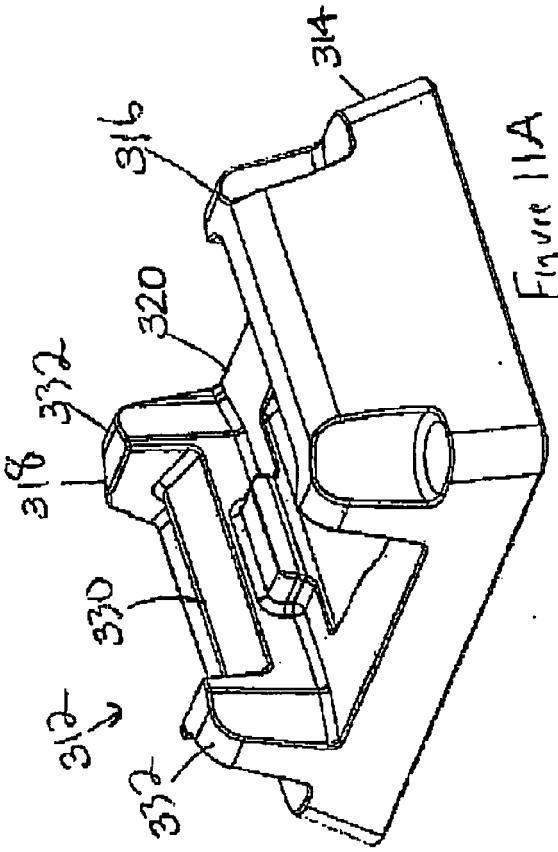


Figure 11A

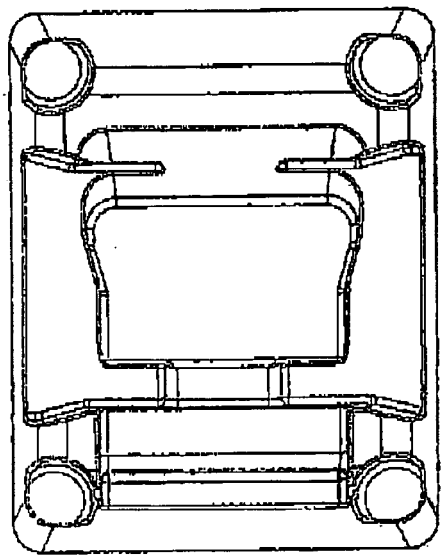


Figure 11D

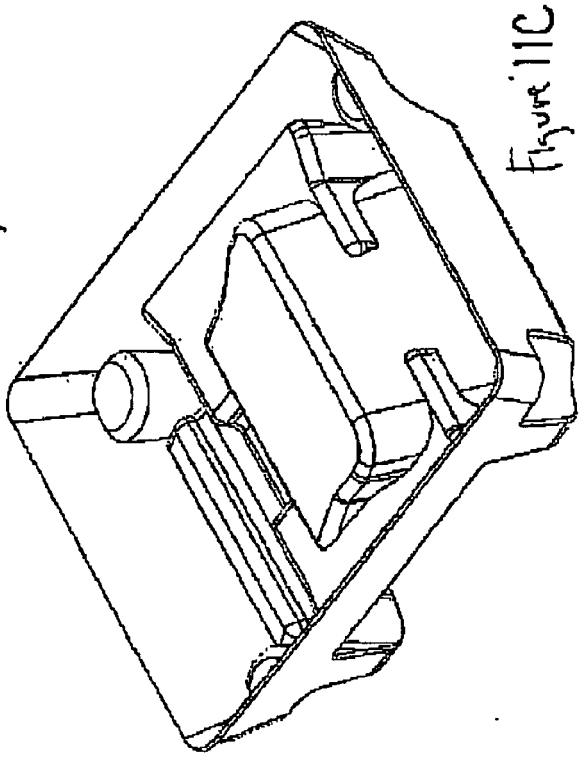


Figure 11C

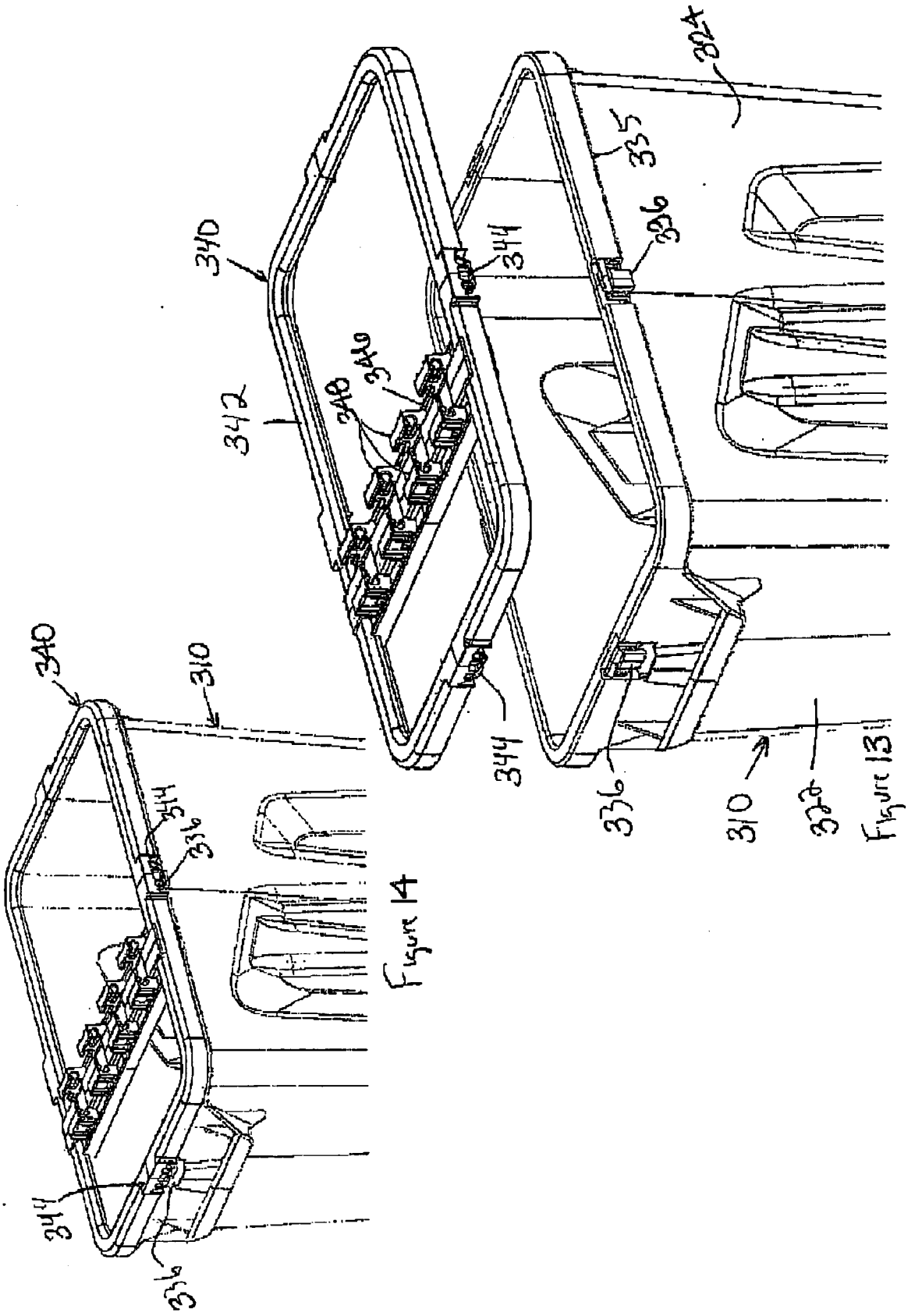


Figure 14

Figure 13

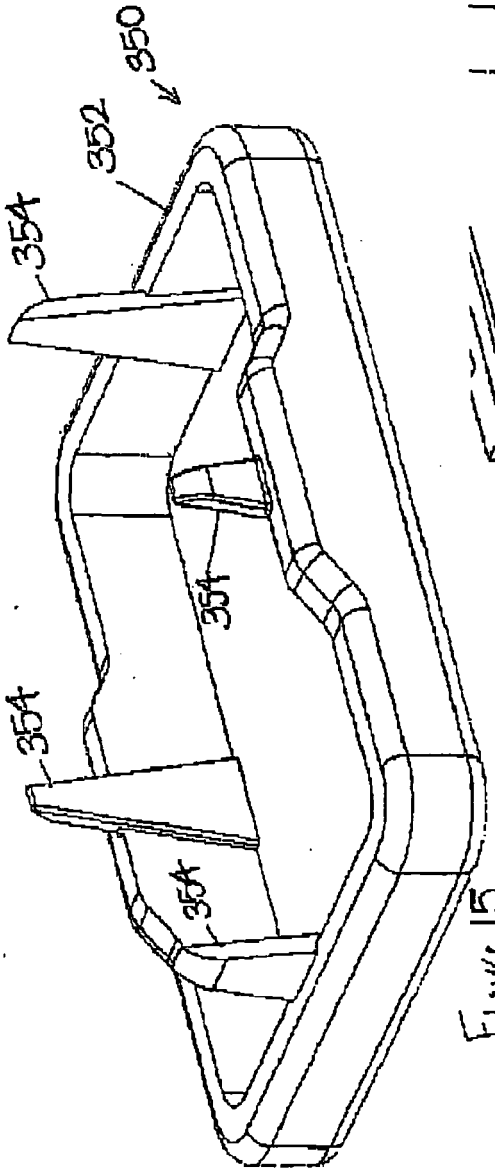


Figure 15

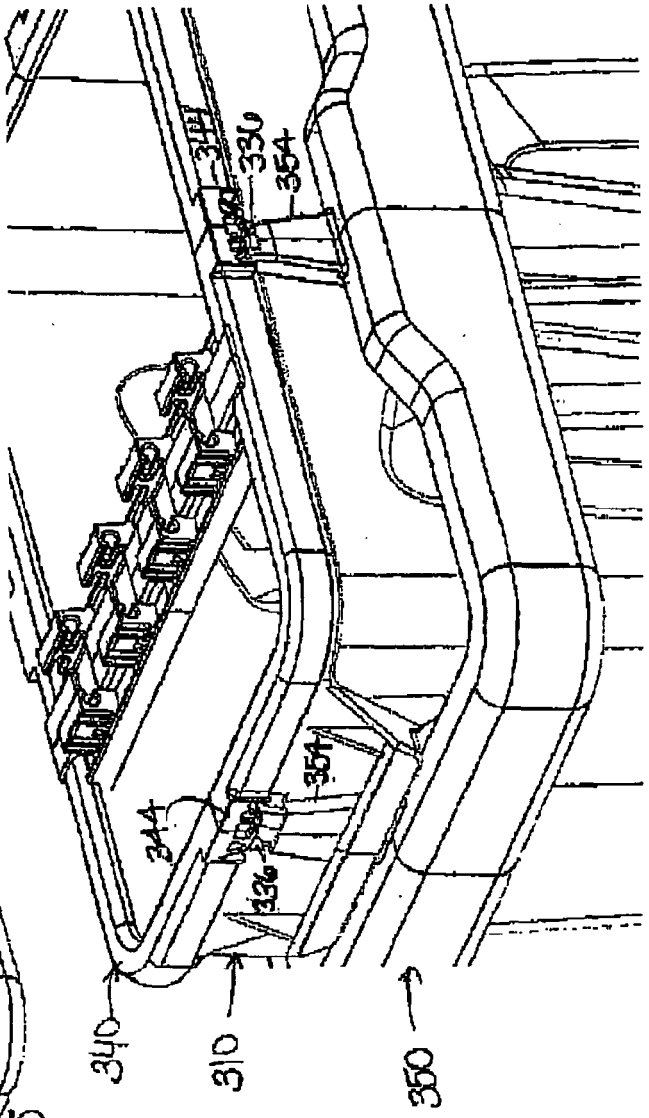


Figure 16

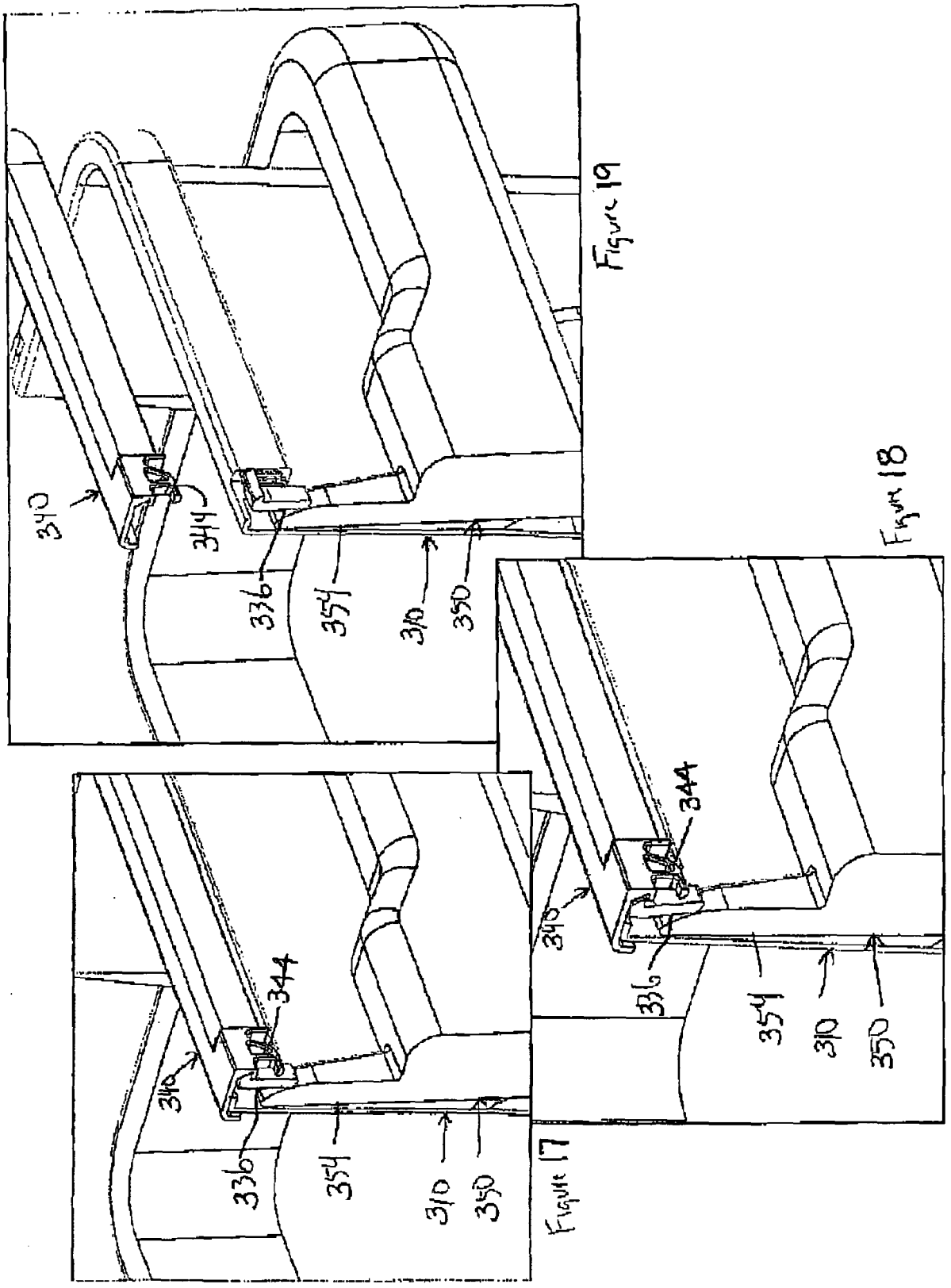
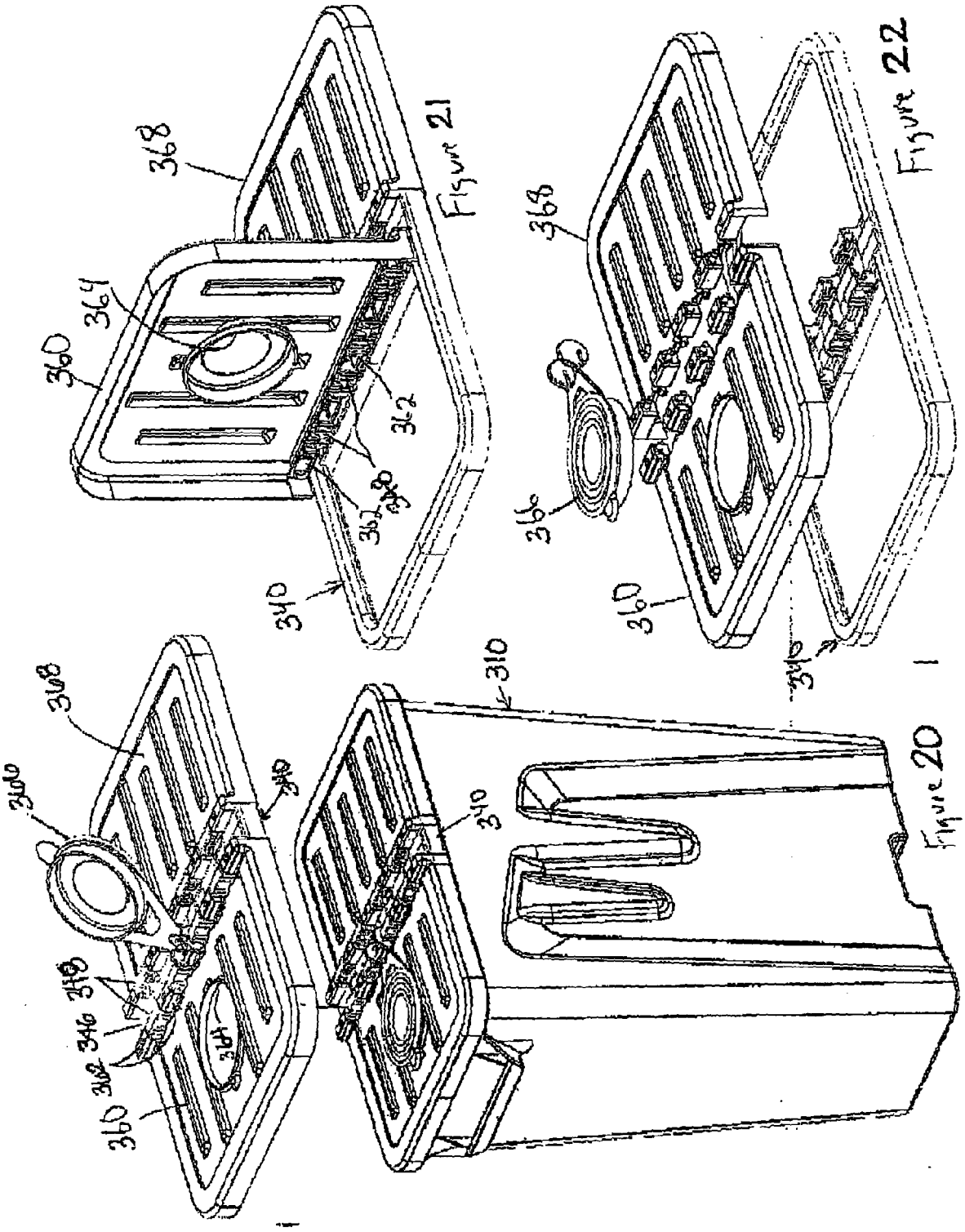


Figure 19

Figure 18

Figure 17


368
364
360
362
340
Figure 21
368
366
360
340
Figure 22
308
300
310
340
360
362
346
318
Figure 20

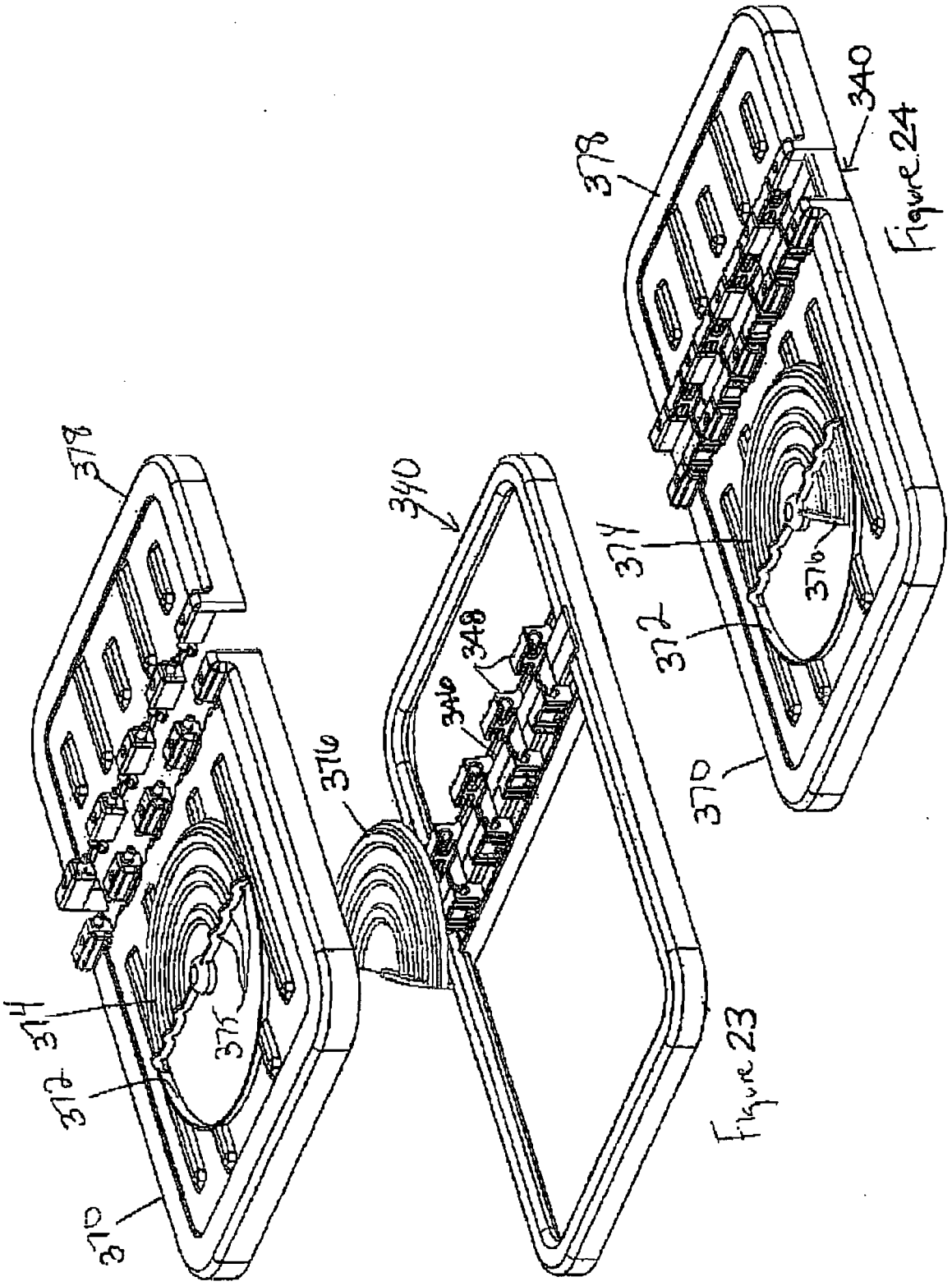


Figure 23

Figure 24

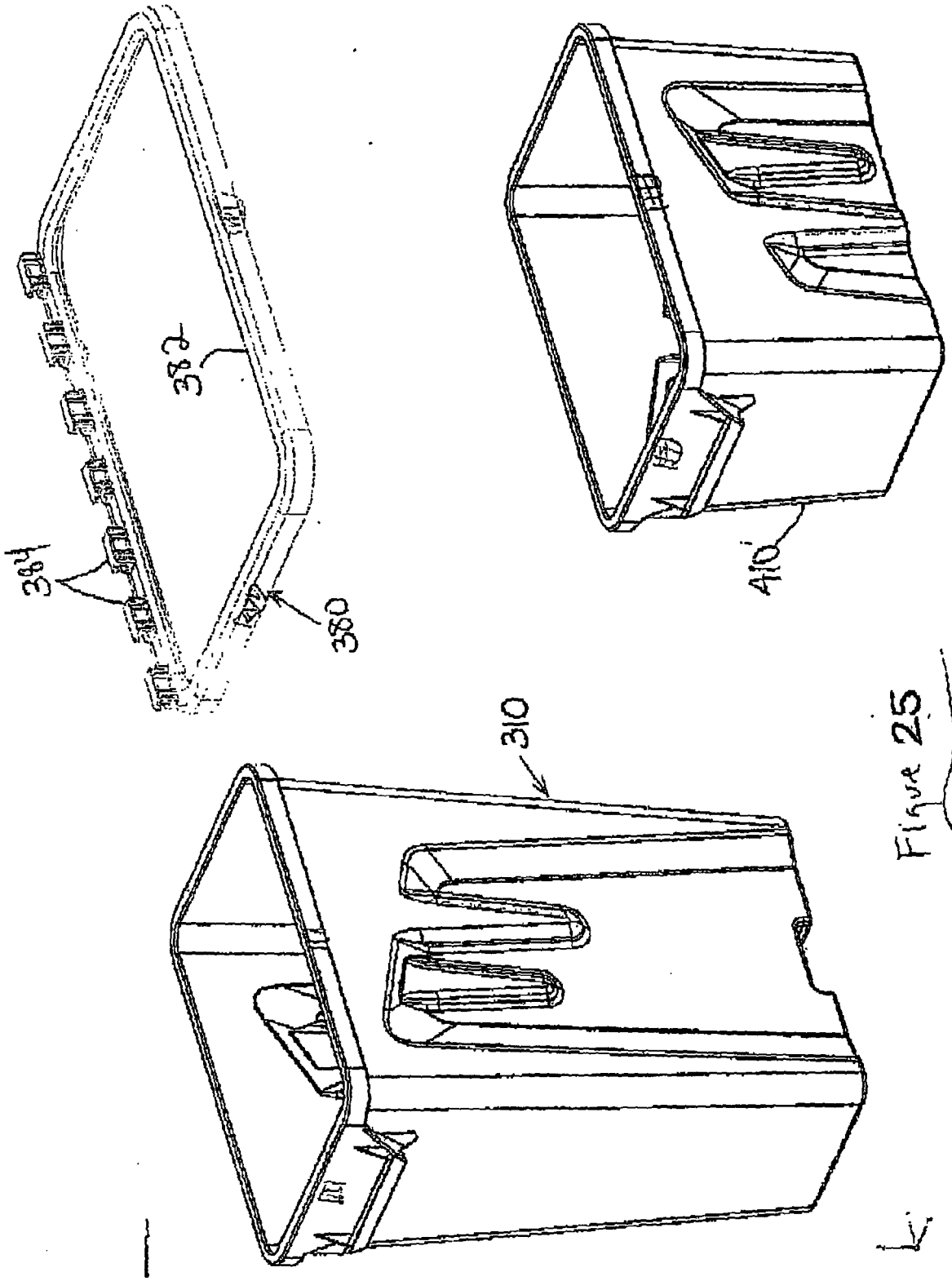


Figure 25

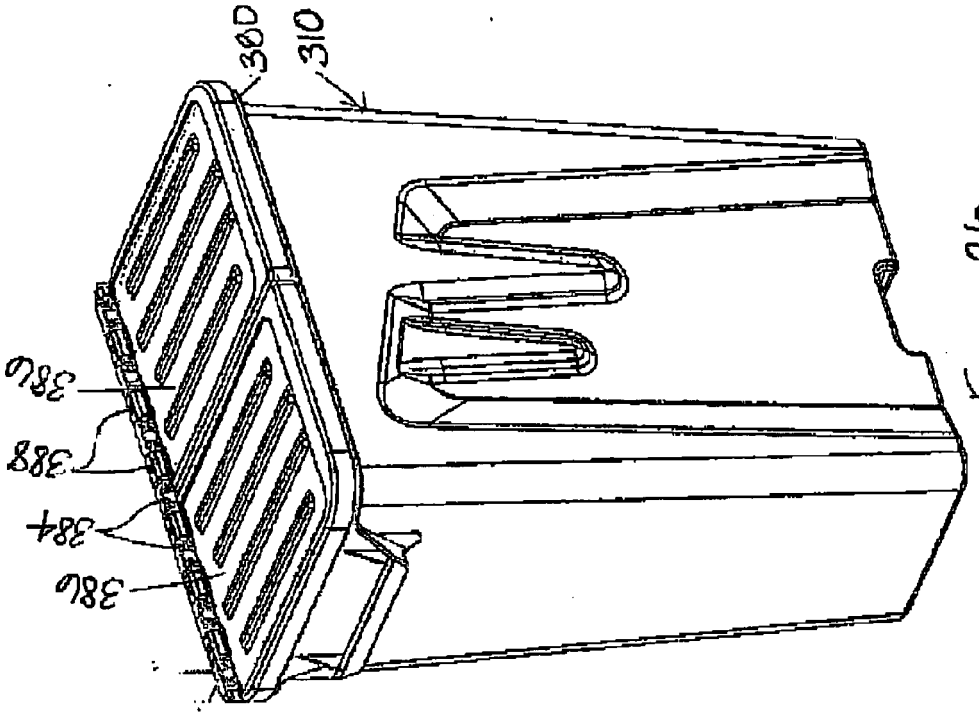


Figure 26

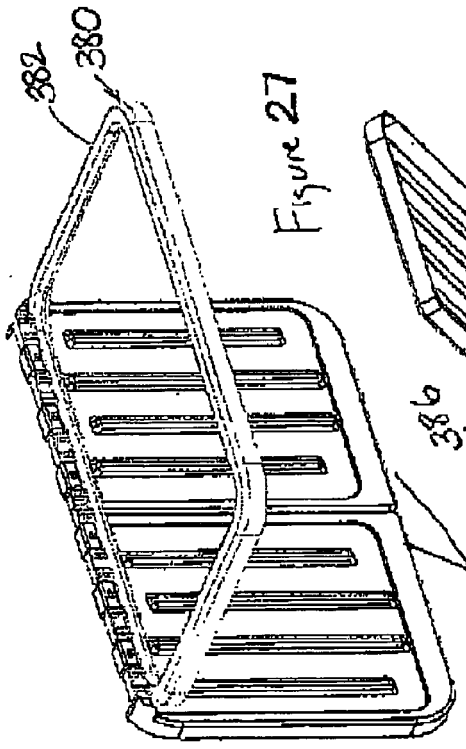


Figure 27

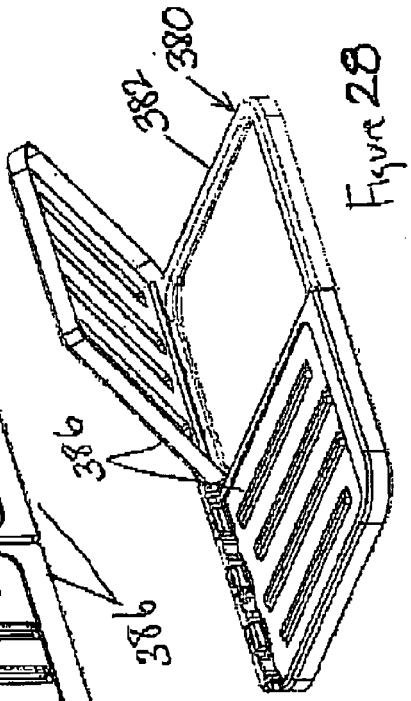


Figure 28

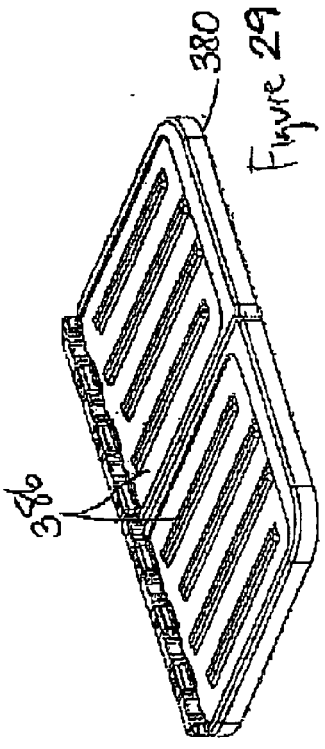


Figure 29

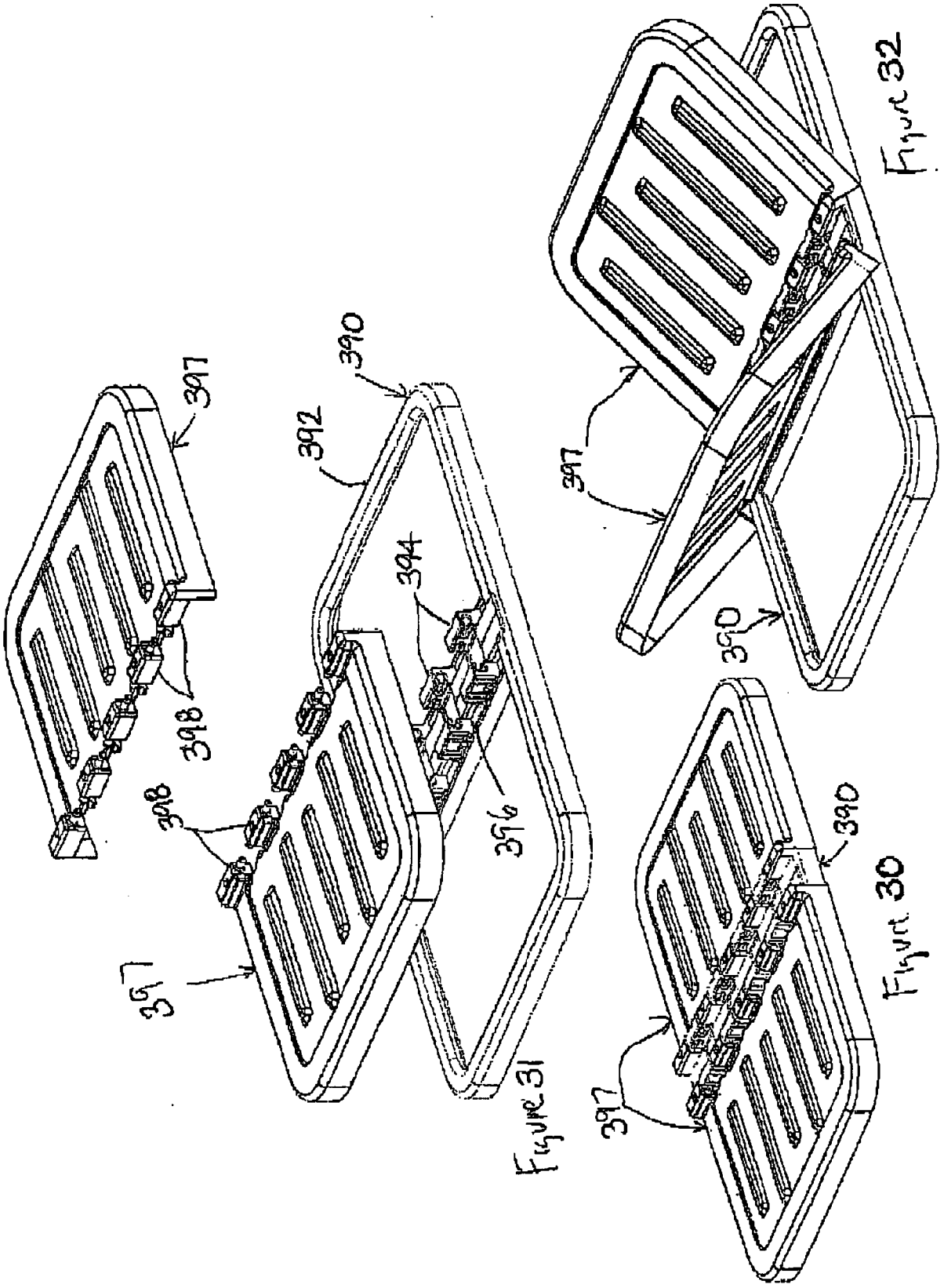
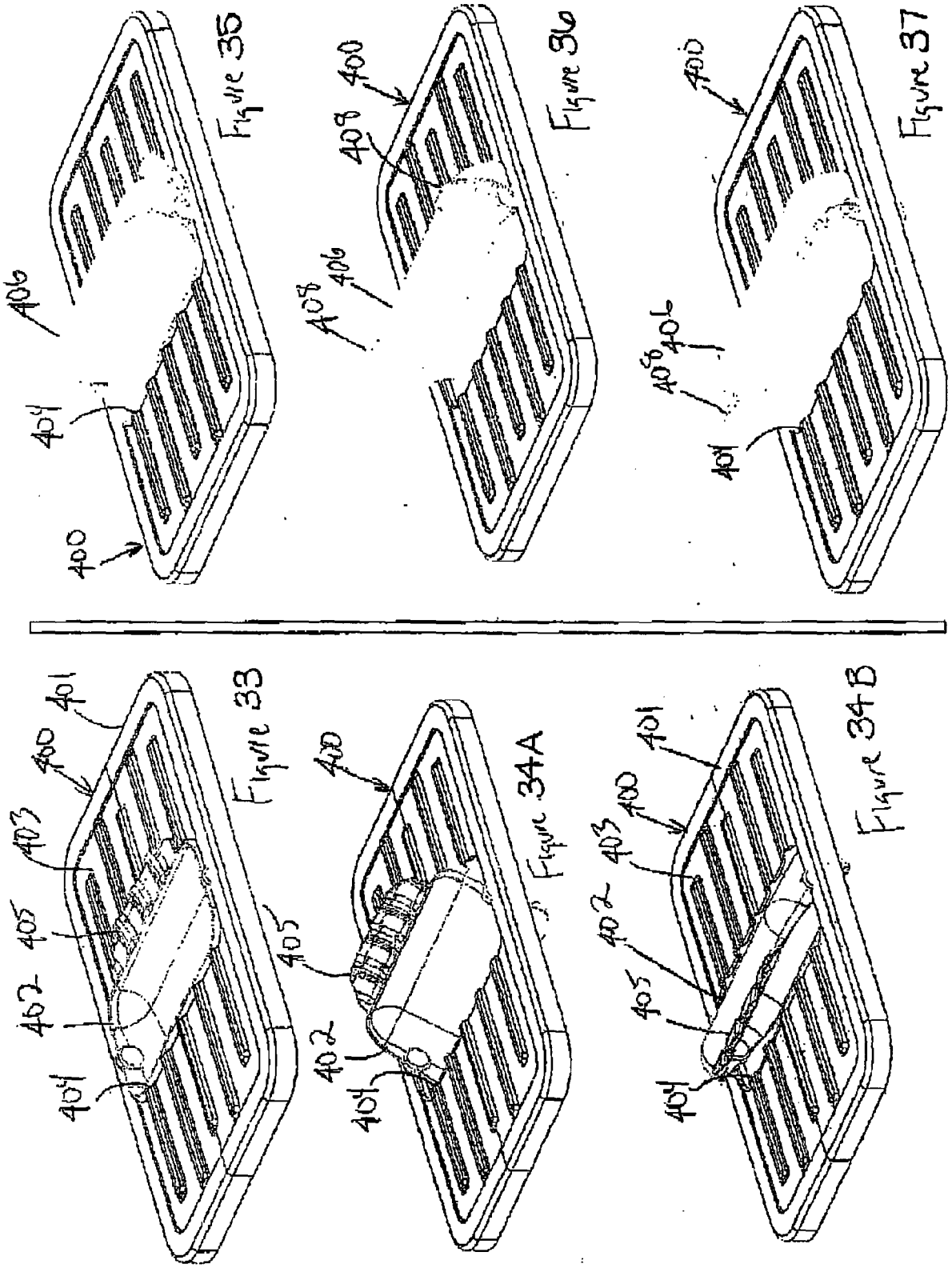
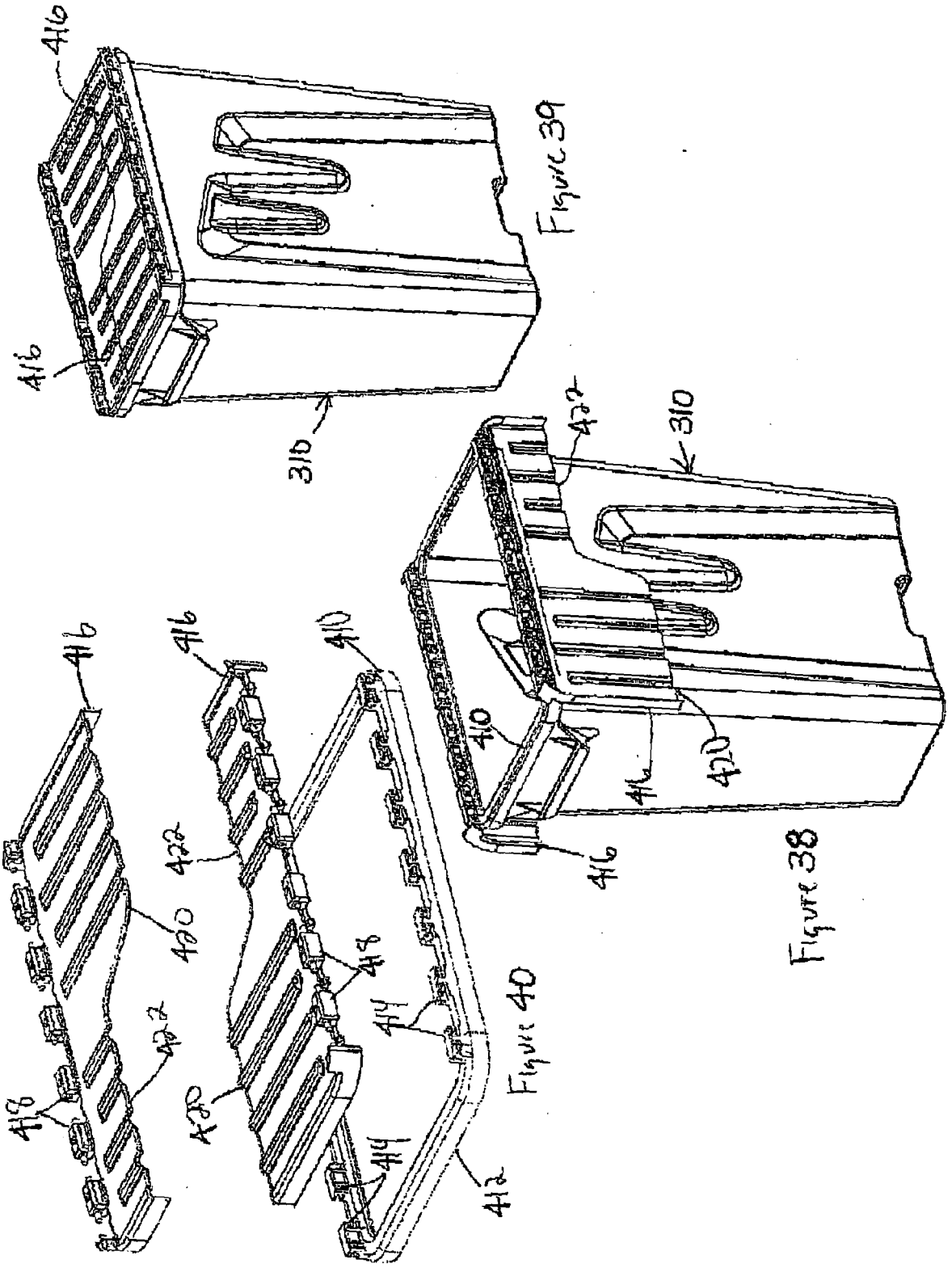


Figure 30

Figure 31

Figure 32


406
404
400
408
406
401
406
Figure 35
Figure 36
Figure 37
401
400
403
405
402
404
400
405
402
404
401
400
403
402
405
404
Figure 33
Figure 34A
Figure 34B


416
416
310
Figure 39
422
310
410
420
416
416
Figure 38
416
416
410
422
420
418
422
414
418
414
412
Figure 40

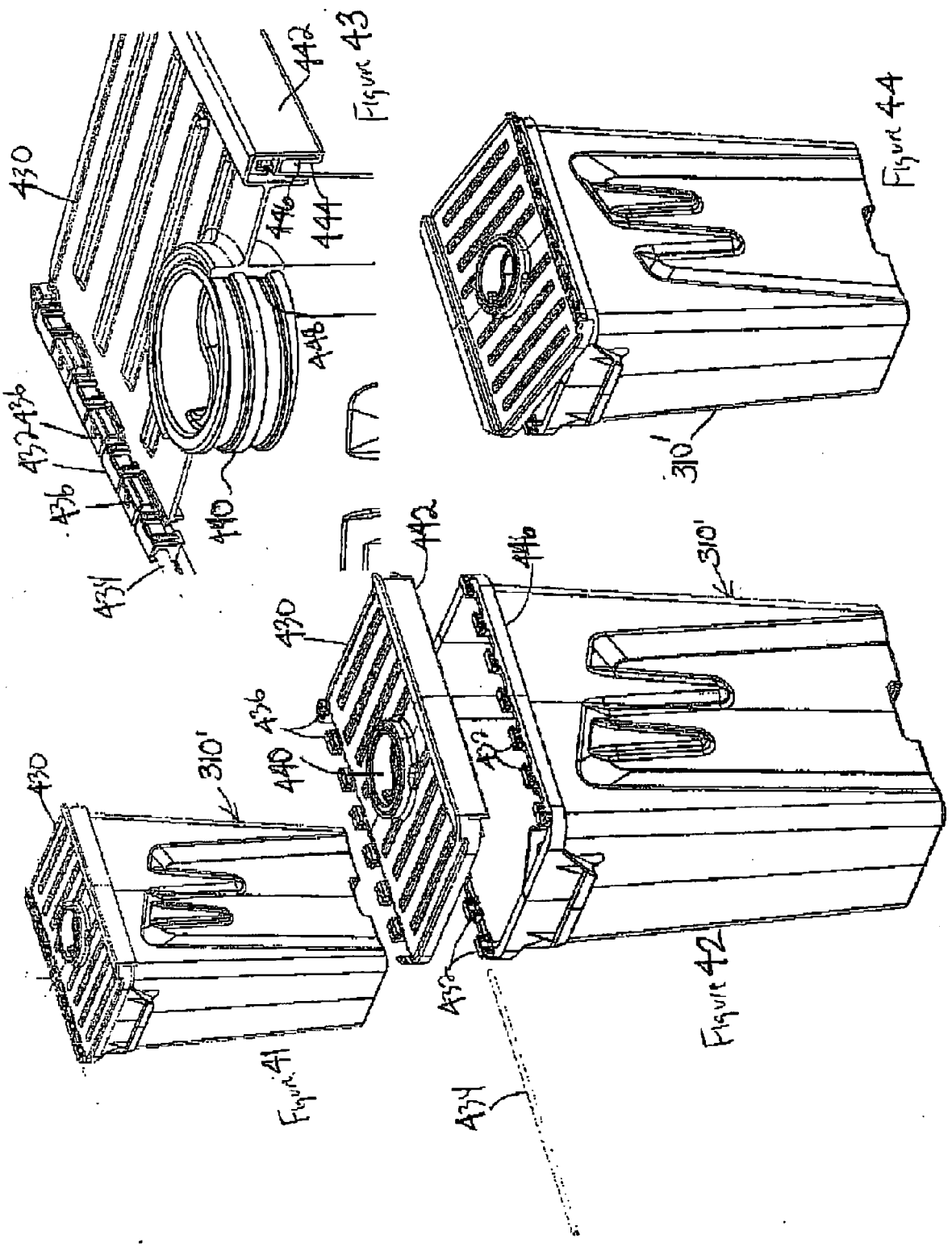


Figure 41 Figure 42 Figure 43 Figure 44

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 98258107 P **[0001]**
- US 61022178 B **[0001]**