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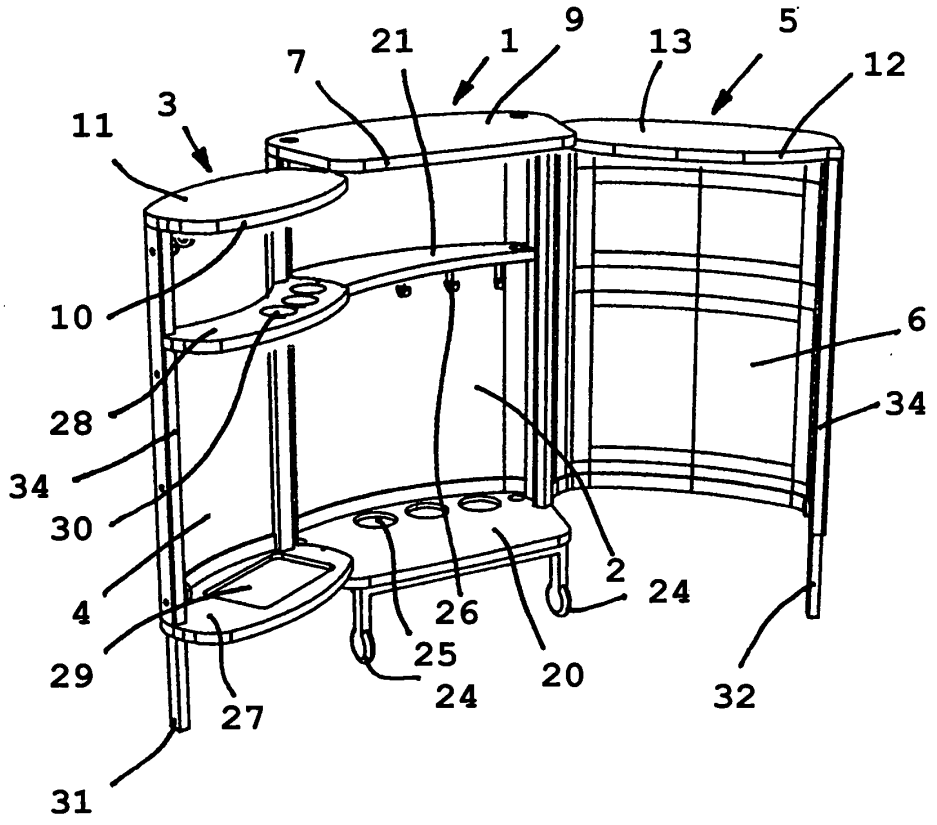
(54) **Mobile desk**

(57) The present invention relates to a mobile desk comprising a wheel-arrangement (22) that is intended to rest on a floor or the like.

It is significant of the desk according to the present invention that it comprises at least two elements (1, 3, 5), that at least one of the elements defines a horizontal top surface (9, 11, 13), that the desk may assume a position where the elements (1, 3, 5) are expanded, and that the desk may assume a position where the elements (1, 3, 5) are folded.

Figure 1



EP 1 795 087 A1

Description

Technical Field of the Invention

[0001] The present invention relates to a mobile desk comprising a wheel-arrangement that is intended to rest on a floor or the like.

Prior Art

[0002] From EP 1 215 648 an information desk is previously known, said desk comprising a wheel-supported box and a mast shaped carrier that supports a working area element. The carrier and its adherent elements have dimensions or are collapsible to elements that may be received in the wheel-supported box.

[0003] From US-A-4,436,353 and US-A-4,856,627 are previously known tables that comprises a number of elements that are stored in a storage device when being in inactive positions. The elements may be unfold to create a table with a working area.

Objects and Features of the Invention

[0004] A primary object of the present invention is to present a desk that will constitute a temporary area for working or exhibition, preferably for people in the service sector, e.g. tourist guides at airports but also for all kinds of exhibition purposes, temporary lectures, entertainment and outdoor catering pools.

[0005] A further object of the present invention is to have the desk ergonomically designed.

[0006] A still further object of the present invention is that the desk may assume a transport mode and a working mode.

[0007] A still further object of the present invention is that the desk should be easy to transport by minimal manpower.

[0008] At least the primary object of the present invention is realised by means of a desk that has been given the features of the appending independent claim 1. Preferred embodiments of the invention are defined in the dependent claims.

[0009] 2

Brief Description of the Drawings

[0010] Below a number of embodiments of the invention will be described, reference being made to the accompanying drawings, where:

Figure 1 shows a perspective inside view of a first embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 2 shows a perspective outside view of the desk according to figure 1;

Figure 3 shows a top view of the desk according to figure 1 when the desk is in an expanded mode;

Figure 4 shows a top view of the desk according to figure 1 when the desk is in a folded mode;

Figure 5 shows a perspective view of the embodiment according to figure 1, the desk being in a folded mode;

Figure 6 shows a perspective view of the desk according to figure 5, the view being from a different angle;

Figure 7 shows a perspective inside view of an alternative embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 8 shows a perspective outside view of the desk according to figure 7;

Figure 9 shows a perspective view of the embodiment according to figure 7, the desk being in a folded mode;

Figure 10 shows a perspective view of the desk according to figure 9, the view being from a different angle;

Figure 11 shows a perspective inside view of a further alternative embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 12 shows a perspective outside view of the desk according to figure 11;

Figure 13 shows a perspective view of the embodiment according to figure 11, the desk being in a folded mode;

Figure 14 shows a perspective view of the desk according to figure 13, the view being from a different angle;

Figure 15 shows a perspective inside view of a still further alternative embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 16 shows a perspective outside view of the desk according to figure 15;

Figure 17 shows a perspective view of the embodiment according to figure 15, the desk being in a folded mode;

Figure 18 shows a perspective view of the desk according to figure 17, the view being from a different angle;

Figure 19 shows a perspective inside view of a still further alternative embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 20 shows a perspective outside view of the desk according to figure 19;

Figure 21 shows a perspective view of the embodiment according to figure 19, the desk being in a folded mode;

Figure 22 shows a perspective view of the desk according to figure 21, the view being from a different angle, a stool closing the upper

end of the desk;

Figure 23 shows a perspective inside view of a still further alternative embodiment of a desk according to the present invention, the desk being in an expanded working mode;

Figure 24 shows a perspective outside view of the desk according to figure 23;

Figure 25 shows a perspective view of the embodiment according to figure 23, the desk being in a folded mode;

Figure 26 shows a perspective view of the desk according to figure 25, the view being from a different angle.

Detailed Description of Preferred Embodiments of the Invention

[0011] In figure 1 and 2 the desk is shown in an expanded, working mode. As is evident from figures 1 and 2 the desk according to the present invention comprises three elements 1, 3 and 5. The first element 1 constitutes a central main element while the second and third elements 3 and 5 constitute side elements. Generally, each element comprises a shell with an outer convex surface and an inner concave surface. Thus, the first element comprises a first shell 2, the second element comprises a second shell 4 and the third element 5 comprises a third shell 6.

[0012] As is evident from figure 1 each element 1, 3, 5 comprises a top plate that defines a top surface. The first element 1 has a first top plate 7 that defines a first top surface 9. The second element 3 has a second top plate 10 that defines a second top surface 11. The third element 5 has a third top plate 12 that defines a third top surface 13. Generally the top surfaces 9, 11, 13 are horizontal.

[0013] In the shown embodiment the central element 1 comprises a first bottom plate 20 and a first intermediate plate 21. On the lower side of the bottom plate 20 a wheel-arrangement 22 is provided. The wheel-arrangement 22 comprises a frame 23 that is equipped with four wheels 24. The frame is of telescopic design. This will be described more in detail below. The wheel-arrangement 22 is attached to the lower side of the bottom plate 20. This means that the central element 1 is supported by the wheel-arrangement 22 that in its turn normally is supported by a floor or the like.

[0014] In the shown embodiment the first bottom plate 20 is equipped with a number of first holes 25 and the first intermediate plate 21 is equipped with a number of pegs 26.

[0015] In the shown embodiment the second element 3 comprises a second bottom plate 27 and a second intermediate plate 28, the second bottom plate 27 being equipped with a rectangular opening 29 while the second intermediate 28 plate being equipped with second holes 30.

[0016] As is evident from figures 1 and 2 the side elements 3 and 5 are equipped with supporting legs 31 and 32, said supporting legs 31, 32 being telescopically received in a respective tube 33 and 34 at the free edge of the adherent side element 3 and 5 respectively. The supporting legs 31, 32 are locked in an arbitrary position by means of locking screws.

[0017] The first element 1 is a central element while the second element 3 and the third element 5 are side elements. The second element 3 is hingedly connected to the first element 1, the connection preferably being effected by means of a first hinge. The third element 5 is hingedly connected to the first element 1, the connection preferably being effected by means of a second hinge. The structural design of the first and second hinge is preferably the same. Each hinge preferably comprises a vertical rod that is attached to the central element 1, the second and third elements 3, 5 being pivotally attached to a respective vertical rod. The hinges are not illustrated in figures 1 and 2.

[0018] Since the side elements 3 and 5 are hingedly connected to the central element 1 it is possible to transfer the desk from the working mode, shown in figures 1 and 2, to a folded non-working mode that is suitable for transport of the desk, i.e. the wheels of the desk are normally rolling on a floor.

[0019] In figure 3 and 4 it is schematically illustrated how the desk according to figures 1 and 2 is transferred from a working mode to a non-working mode. In figure 3 the desk is shown in an expanded working mode, i.e. the elements 1, 3 and 5 are arranged side-by-side. In order to transfer the desk from the mode according to figure 3 to the mode according to figure 4 the second element 3 is pivoted relative to the central element 1, from the mode according to figure 3 to the mode according to figure 4, where the second element 3 is received in the central element 1. However, before the second element 3 is transferred to the folded mode according to figure 4, the first supporting leg 31 must be pushed into the first tube 33 and locked in that position to avoid interference with the first bottom plate 20. As is evident from figure 4, the second element 3 is completely received within the outer contours of the central element 1.

[0020] The second element 5 may also be transferred from an expanded mode according to figure 3 to a folded mode according to figure 4. In connection with this transfer the second supporting leg 32 must be pushed inside the second tube 34 and locked in that position in order to avoid interference with the first bottom plate 20 of the central element 1.

[0021] Generally, the vertical position of the top plates 7, 10, 12, the bottom plates 20, 27 and the intermediate plates 21, 28 are arranged in such a way that nearby plates do not interfere with each other in connection with the transfer of the side elements 3, 5 to a folded mode inside the central element 1. As is evident from figure 4, both the second element 3 and the third element 5 are fully received within the outer contours of the central element 1.

[0022] In figures 5 and 6 perspective views of the folded desk are shown. It should be observed that the frame 23 of the wheel-arrangement 22 is in an expanded mode compared to figures 1 and 2. The expanded mode is reached by separating two telescopic portions of the frame 23. This means that the wheels 24 of the wheel-arrangement 22 are at a larger distance from each other in a certain direction, this increasing the stability of the wheel-arrangement 22. The folded mode of the desk according to figures 5 and 6 is a mode suitable for transport and storage of the desk, since the folded mode is compact and hence requires only a minimum of space. When the user of the desk reaches the spot where the user is to perform some kind of service action, the desk according to figures 5 and 6 is transferred to the expanded working mode according to figures 1 and 2. The transferring of the desk from the folded mode to the expanded mode is effected in the reverse way compared to what has been described above regarding transferring from expanded mode to folded mode.

[0023] As is evident from figures 5 and 6 the desk is equipped with handles 42 that facilitate the handling of the desk in a folded mode, especially when lifting the desk in vertical direction.

[0024] The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode.

[0025] In figures 7-10 an alternative embodiment of a desk according to the present invention is shown. In figures 7 and 8 the desk is in an expanded, working mode while in figures 9 and 10 the desk is in a folded mode.

[0026] The desk according to figures 7-10 comprises two elements 101 and 103 that are hingedly connected with each other by means of an upper hinge 114 and a lower hinge 115. The first element 101 is the main element and the second element 103 is a side element. Generally, each element comprises a shell with an outer convex surface and an inner concave surface. Thus, the first element 101 comprises a first shell 102 and the second element 103 comprises a second shell 104 as well as a side wall 117 that extends transverse to the second shell 104.

[0027] The first element 101 has a first top plate 107 that defines a first top surface 109. The second element 103 has a second top plate 110 that defines a second top surface 111. Generally the top surfaces 109 and 111 are horizontal. The first main element 101 comprises a first bottom plate 120. The second element 103 comprises a second bottom plate 127. The second top plate 110 and the second bottom plate 127 join the side wall 117.

[0028] On the lower side of the bottom plates 120 and 127 a wheel-arrangement 122 is provided. The wheel-arrangement 122 comprises a number of wheels 124. The two wheels 124 that are located in respective areas of the free edges of the elements 101, 103 constitute supporting means when the desk is in an expanded mode.

[0029] In order to transfer the elements 101 and 103 to a folded mode the elements 101, 103 are pivoted relative to each other around the hinges 114, 115. Then the second element 103 will be received inside the first element 101, see figures 9 and 10. In connection with the folding a bracket 135 of a wheel 124 will be received in a notch 136 in the first bottom plate 120. The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode.

[0030] In figures 11-14 a further alternative embodiment of a desk according to the present invention is shown. In figures 11 and 12 the desk is in an expanded, working mode while in figures 13 and 14 the desk is in a folded mode.

[0031] The desk according to figures 11-14 comprises two elements 201 and 203 that are hingedly connected with each other by means of an upper hinge 214 and a lower hinge 215. The elements 201 and 203 are in principle identical but inverted. Generally, each element comprises a shell with an outer convex surface and an inner concave surface. Thus, the first element 201 comprises a first shell 202 as well as a first side wall 216 that extends transverse to the first shell 202. The second element 203 comprises a second shell 204 as well as a second side wall 217 that extends transverse to the second shell 204.

[0032] The first element 201 has a first top plate 207 that defines a first top surface 209. The second element 203 has a second top plate 210 that defines a second top surface 211. Generally the top surfaces 209 and 211 are horizontal. The first element 201 comprises a first bottom plate 220. The second element 203 comprises a second bottom plate 227. On the lower side of the bottom plates 220 and 227 a wheel-arrangement is provided. The wheel-arrangement comprises a number of wheels 224, the number being four (4) in the embodiment according to figures 11-14. The two outer wheels 224, when the desk is in expanded mode, constitute supporting means.

[0033] In order to transfer the elements 201 and 203 to a folded mode, the elements 201, 203 are pivoted relative to each other around the hinges 214, 215. The folded mode is shown in figures 13 and 14. In that mode the first element 201 and the second element 203 will abut each other, i.e. the first top plate 207 will contact the second top plate 210, the first bottom plate 220 will contact the second bottom plate 227 and the free edges of the respective shells 202 and 204 will contact each other. The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode.

[0034] In figures 15-18 a further alternative embodiment of a desk according to the present invention is shown. In figures 15 and 16 the desk is in an expanded, working mode while in figures 17 and 18 the desk is in a folded mode.

[0035] The desk according to figures 15-18 comprises two elements 301 and 303 that are telescopically displaceable relative to each other. The first element 301 is the main element and the second element 303 is a complementary element. Generally, each element comprises

a shell with a front wall and a side wall. Thus, the first element 301 comprises a first shell 302 with a first front wall 318 and a first side wall 316. The second element 303 comprises a second shell 304 with a second front wall 319 and a second side wall 317. Generally the side walls 316, 317 extend transverse to the front walls 318, 319.

[0036] The first element 301 has a first top plate 307 that defines a first top surface 309. The second element 303 has a second top plate 310 that defines a second top surface 311. Generally the top surfaces 309 and 311 are horizontal. The first main element 301 has no bottom plate. The second element 303 comprises a bottom plate 327. The second top plate 310 and the bottom plate 327 join the second side wall 317.

[0037] Each of the elements 301 and 303 also comprises a lower portion that is integral with the adherent side wall and extends downwards from the adherent side wall. Thus, the first element 301 has a first lower portion 340 and the second element 303 has a second lower portion 341. Generally, the lower portions 340 and 341 have a curved shape with an outer concave surface.

[0038] On the concave surface of the lower portions 340 and 341 a number of wheels are provided. In the disclosed embodiment each lower portion is equipped with a set of two wheels 324.

[0039] In order to transfer the elements 301 and 303 to a folded mode the elements 301, 303 are displaced relative to each other in the longitudinal direction of each element 301 and 303. When the relative displacement has been effected the second element 303 will be received inside the first element 301, see figures 17 and 18. The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode. In figure 17 it is shown how the interior of the second element 303 may be closed by a jalousie door 339.

[0040] The further alternative embodiment of a desk according to figures 19-22 comprises three elements 401, 403 and 405. The three elements 401, 403 and 405 are in principle identical, the first element 401 being a central element and the second and third elements 403 and 405 being side elements. Generally, each element comprises a shell with an outer convex surface and an inner concave surface. Thus, the first element 401 comprises a first shell 402, the second element 403 comprises a second shell 404 and the third element 405 comprises a third shell 406. Generally, the shell of each element 401, 403, 405 comprises an upper cylindrical portion and a lower tapering portion.

[0041] As is evident from figures 19 and 20 each element 401, 403, 405 comprises a top plate that defines a top surface. The first element 401 has a first top plate 407 that defines a first top surface 409. The second element 403 has a second top plate 410 that defines a second top surface 411. The third element 405 has a third top plate 412 that defines a third top surface 413. Generally the top surfaces 409, 411, 413 are horizontal.

[0042] In the shown embodiment the central element 401 comprises a first bottom plate 420, the second element 403 comprises a second bottom plate 427 and the third element 405 comprises a third bottom plate 437.

[0043] Each element 401, 403, 405 is supported by a wheel-arrangement 422 that in the disclosed embodiment comprises a number of wheels 424. The wheel-arrangement 422 also comprises a frame that is attached to the tapering portion of the shell of the adherent element. The frame also carries the wheels 424 that carry the element relative to the floor or like.

[0044] The elements 401, 403, 405 are hingedly connected, i.e. the first element 401 is connected via two hinges 414A, 415A to the second element 403 and to the third element 405 via two hinges 414B and 415B. However, the side elements 403 and 405 are not hingedly connected to each other.

[0045] In figures 21 and 22 it is schematically illustrated how the desk according to figures 19 and 20 is transferred from a working mode to a non-working mode. In figures 19 and 20 the desk is shown in an expanded working mode, i.e. the elements 401, 403 and 405 are arranged side-by-side. In order to transfer the desk from the mode according to figure 19 and 20 to the mode according to figures 21 and 22 it is required that the second element 403 and the third element 405 are pivoted relative to the central first element 401. Eventually the side elements 403 and 405 will contact each other and the first central element 401, i.e. the elements have assumed the non-working mode of figures 21 and 22. The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode.

[0046] In figure 22 it is shown how a stool S may be received in the centre of the desk when the desk is in folded mode.

[0047] The further alternative embodiment of a desk according to figures 23-26 is very similar to the embodiment according to figures 19-22. However, the desk according to figures 23-26 comprises two elements 501 and 503. The two elements 501 and 503 are in principle identical. Generally, each element comprises a shell with an outer convex surface and an inner concave surface. Thus, the first element 501 comprises a first shell 502 and the second element 503 comprises a second shell 504. Generally, the shell of each element 501, 503 comprises an upper cylindrical portion and a lower tapering portion.

[0048] As is evident from figures 23 and 24 each element 501, 503 comprises a top plate that defines a top surface. The first element 501 has a first top plate 507 that defines a first top surface 509. The second element 503 has a second top plate 510 that defines a second top surface 511. Generally the top surfaces 509, 511 are horizontal.

[0049] In the shown embodiment the first element 501 comprises a first bottom plate 520 and the second element 503 comprises a second bottom plate 527.

[0050] Each element 501, 503 is supported by a wheel-arrangement 522 that in the disclosed embodiment com-

prises a number of wheels 524. The wheel-arrangement 522 also comprises a frame that is attached to the tapering portion of the shell of the adherent element. The frame also carries the wheels 524 that carry the adherent element relative to the floor or like.

[0051] The elements 501 and 503 are hingedly connected, i.e. the first element 501 is connected to the second element 503 via two hinges 514 and 515.

[0052] In the embodiment disclosed in figures 23 and 24 each element 501, 503 is equipped with an auxiliary tray 538 that is hingedly connected to the adherent element 501, 503. The trays 538 may be folded to a non-active position on top of the surfaces 509 and 511, see figure 26.

[0053] In figures 25 and 26 it is schematically illustrated how the desk according to figures 23 and 24 is transferred from a working mode to a non-working mode. In figures 23 and 24 the desk is shown in an expanded working mode, i.e. the elements 501 and 503 are arranged side-by-side. In order to transfer the desk from the mode according to figures 23 and 24 to the mode according to figures 25 and 26, the first element 501 and the second element 503 are pivoted relative to each other. Eventually the elements 501 and 503 will contact each other, i.e. the elements have assumed the non-working mode of figures 25 and 26. The desk is equipped with means (not shown) to lock the elements together when the desk is in a folded mode.

[0054] It is common for all embodiments described above, except the embodiment according to figures 15-18, that the hinge connection between two elements defines a pivot axis PA that extends transverse to the top surface.

[0055] All embodiments of the desk disclosed above are equipped with handles. However, only the handles 42 of the desk according to figures 5 and 6 have been given a reference numeral. The handles of the other embodiments serve the same purpose as the handles 42.

Feasible Modifications of the Invention

[0056] Although a number of embodiments have been described above it is of course possible to further vary the structural design of the desk within the scope of invention. Thus the outer and inner contour of the shells may vary and the auxiliary equipment inside the elements, e.g. shelves or pegs, may be varied in numerous ways.

[0057] Within in the scope of the present invention it is feasible that the desk is equipped with a sign that shows company logotype or alike. The sign is supported by two telescopic, extendable tubes, mounted in openings in the top plates of the desk.

Claims

1. Mobile desk comprising a wheel-arrangement (22; 122; 322; 422; 522) that is intended to rest on a floor or the like, **characterised in that** the mobile desk comprises at least two elements (1, 3, 5; 101, 103; 201, 203; 301, 303; 401, 403, 405; 501, 503), that at least one of the elements defines a horizontal top surface (9, 11, 13; 109, 111; 209. 211; 309, 311, 409, 411, 413; 509, 511), that the desk may assume a position where the elements (1, 3, 5; 101, 103; 201, 203; 301, 303; 401, 403, 405; 501, 503) are expanded, and that the desk may assume a position where the elements (1, 3, 5; 101, 103; 201, 203; 301, 303; 401, 403, 405; 501, 503) are folded.

2. Mobile desk according to claim 1, **characterised in that** the elements (1, 3, 5; 101, 103; 201, 203; 401, 403, 405; 501, 503) are hingedly connected to each other.

3. Mobile desk according to claim 1, **characterised in that** the elements (301, 303) are displaceable relative to each other.

4. Mobile desk according to claim 2, **characterised in that** the hinge connection (14, 15, 114, 115; 214, 215; 414A, 415A, 414B, 415B; 514, 515) between two elements define a pivot axis (PA) that extends transverse to the top surface (9, 11, 13; 109, 111; 209. 211; 409, 411, 413; 509, 511).

5. Mobile desk according to claim 3, **characterised in that** a second element (303) is received in a first element (301) when the elements are folded.

6. Mobile desk according to claims 2 or 4, **characterised in that** a second element (3; 103) is received in a first element (1; 101) when the elements (1, 3; 3, 103) are folded.

7. Mobile desk according to claims 2 or 4, **characterised in that** a second element (203; 403, 405; 503) abuts a first element (201; 401; 501) at a portion distanced from the hinge connection (214, 215; 414A, 415A, 414B, 415B; 514, 515) when the elements (201, 203; 401, 403, 405; 501, 503) are folded.

8. Mobile desk according to any of the previous claims, **characterised in that** the wheel-arrangement (22) may assume a folded mode or an expanded mode.

9. Mobile desk according to any of the previous claims, **characterised in that** supporting means (31, 32) are provided at the free ends of certain elements (3, 5).

10. Mobile desk according to claim 9, **characterised in that** the supporting means constitutes telescopic supporting legs (31, 32).

Figure 1

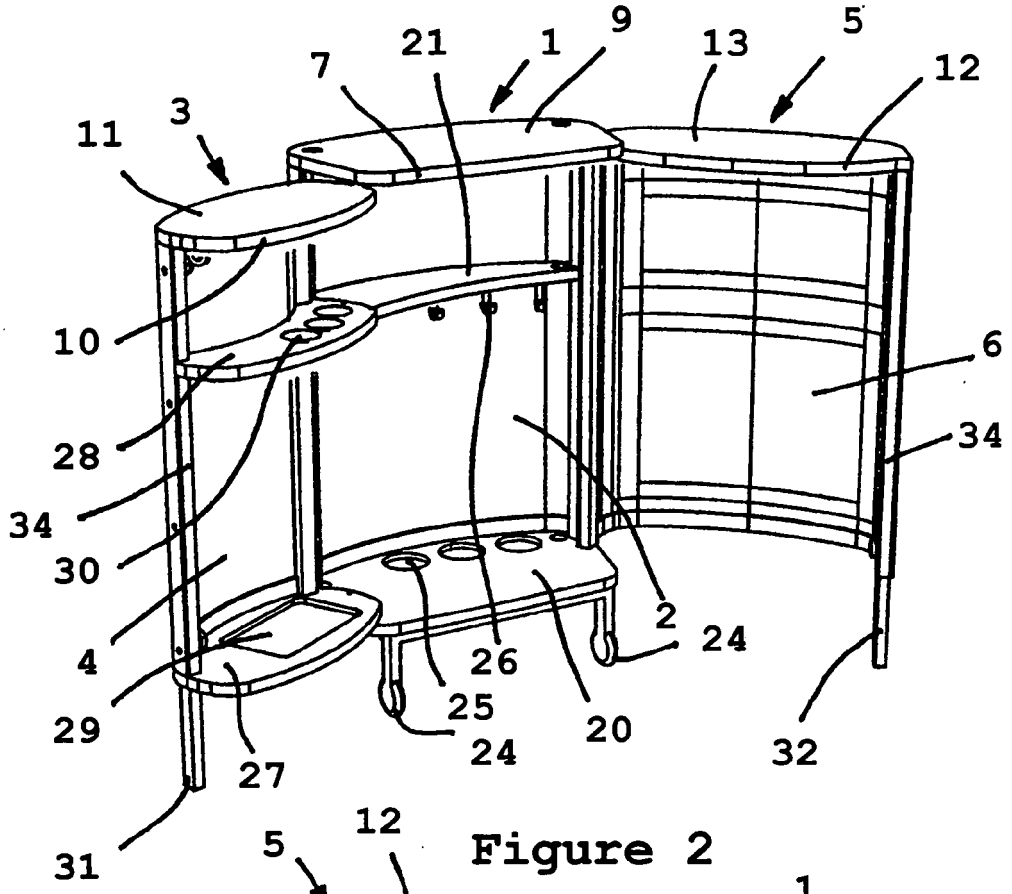


Figure 2

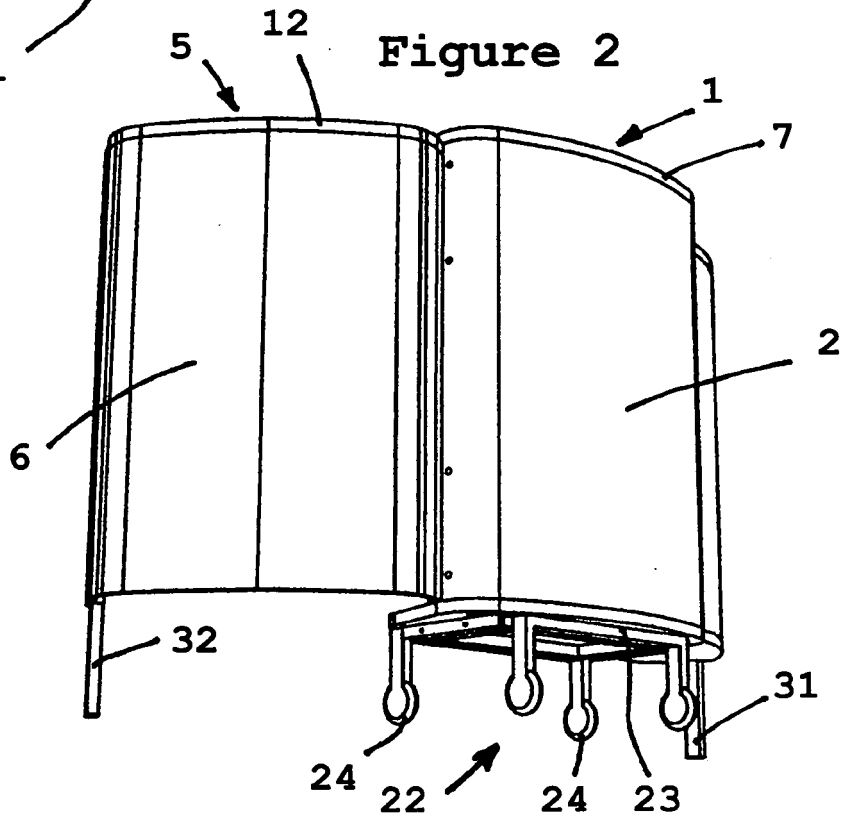


Figure 4

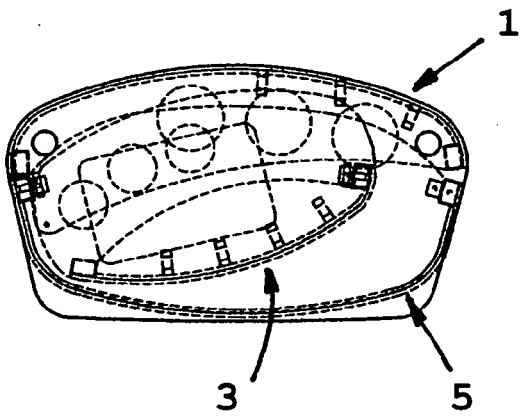


Figure 3

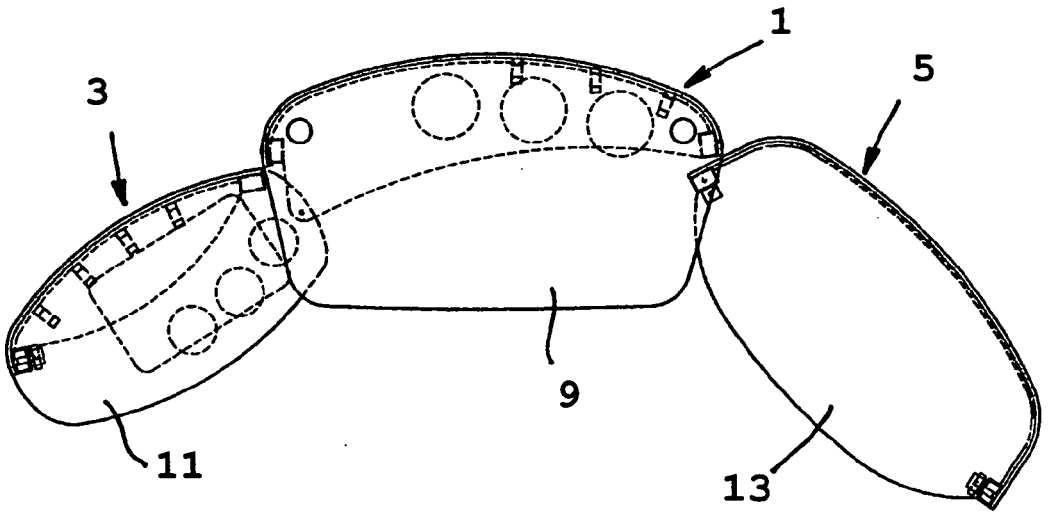


Figure 5

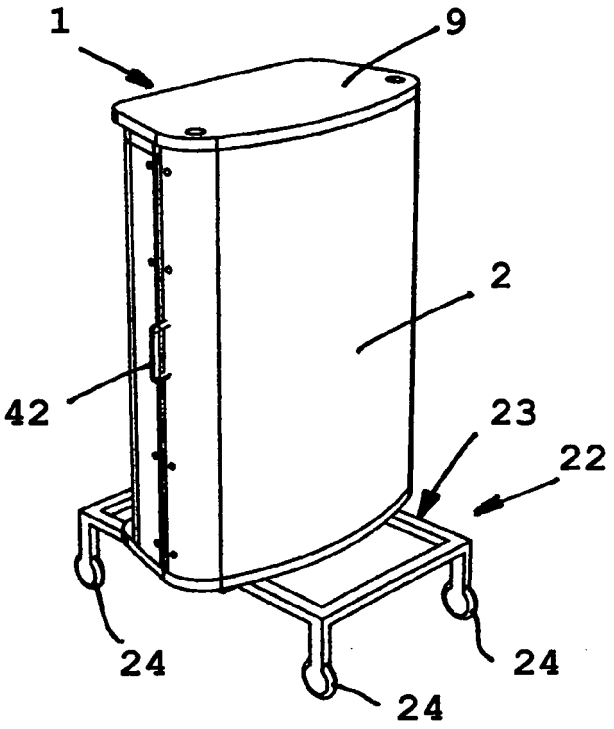


Figure 6

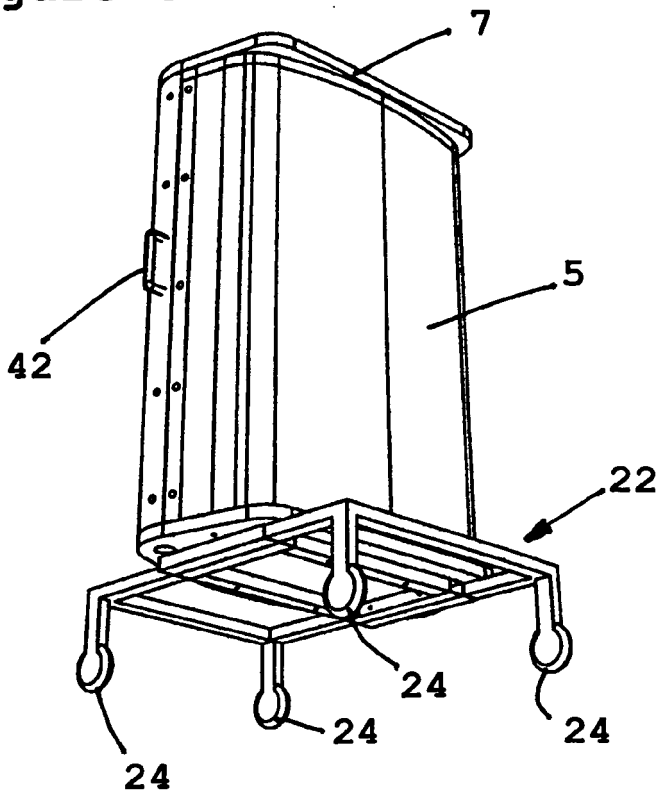


Figure 7

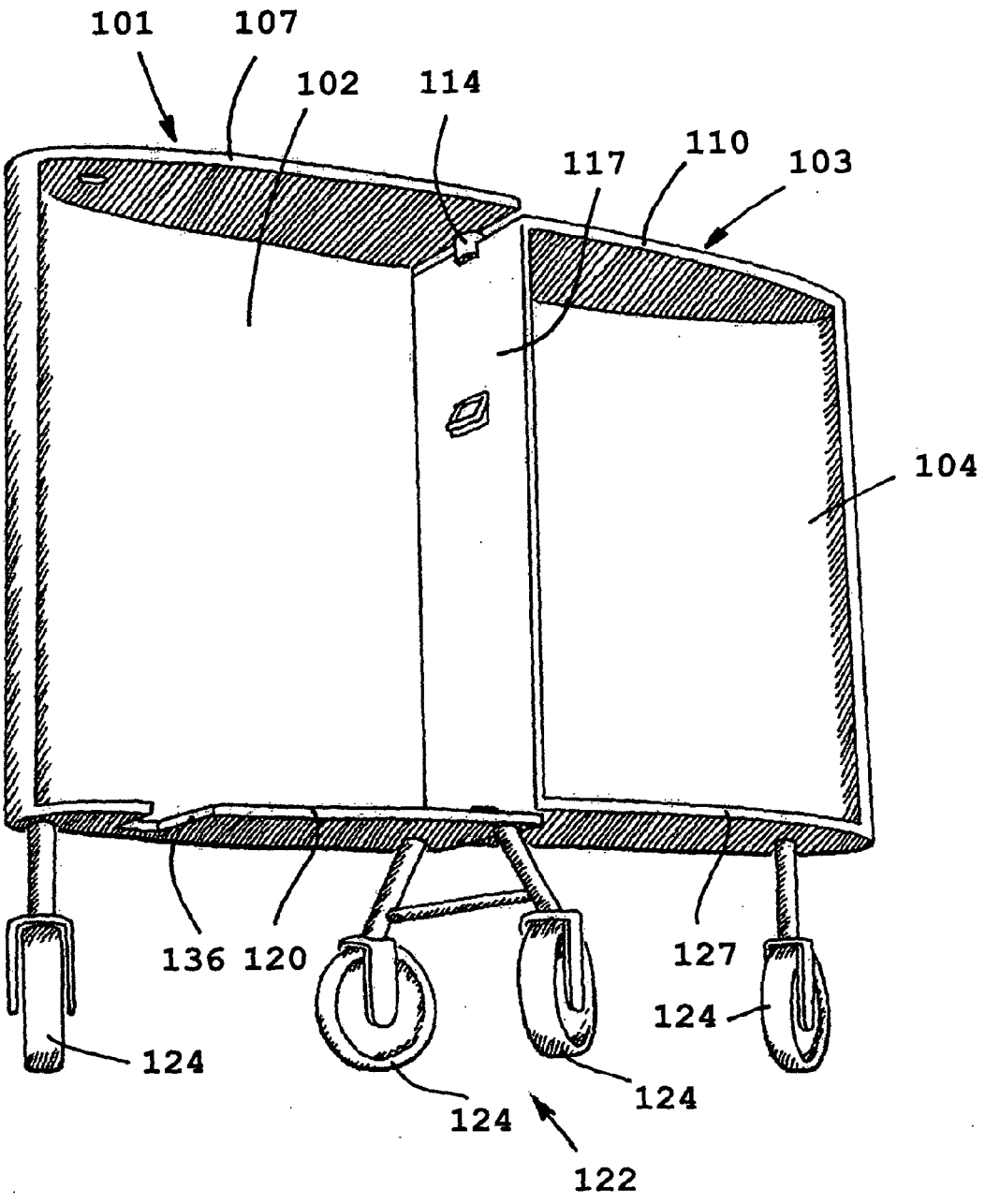


Figure 8

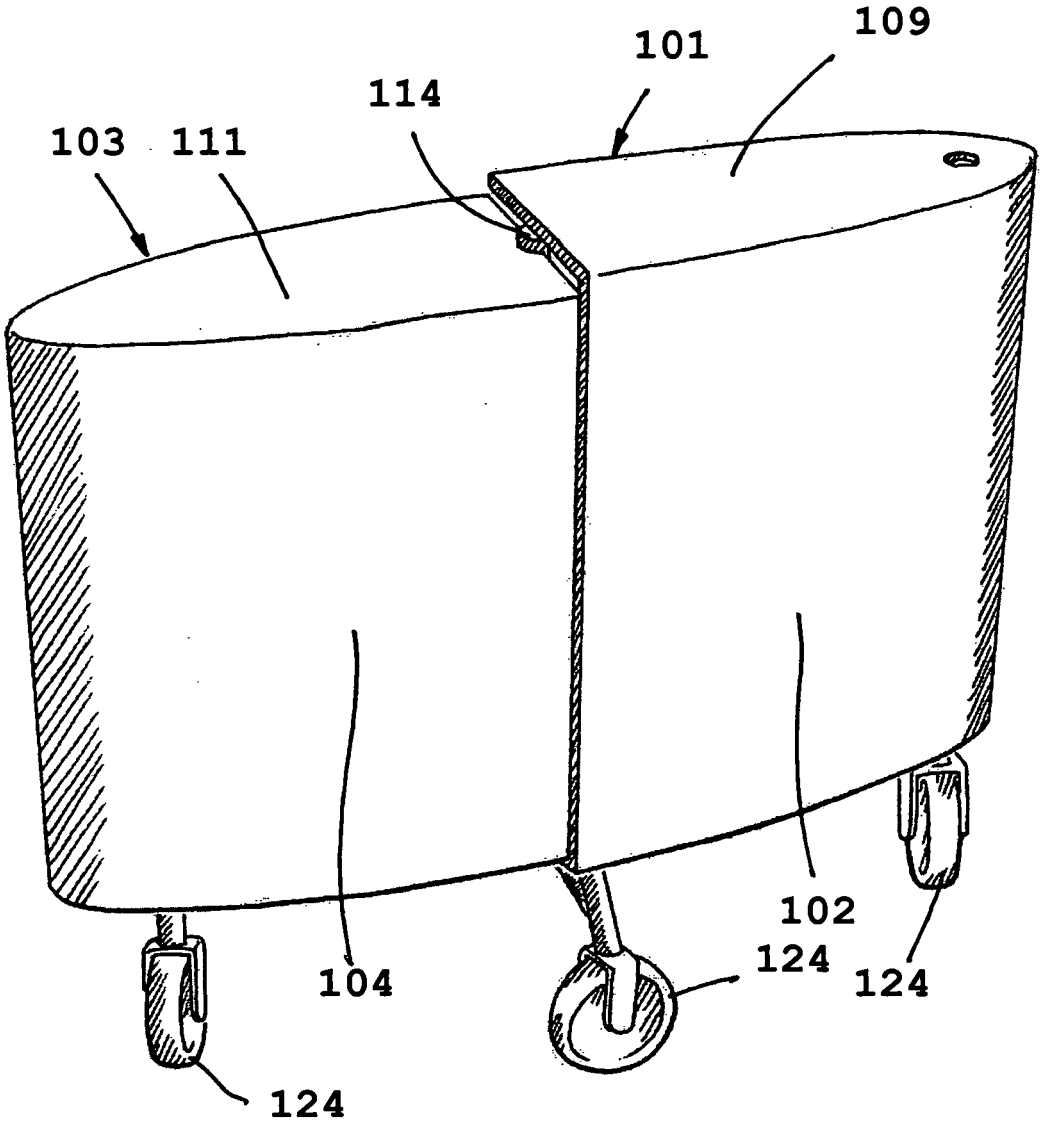


Figure 9

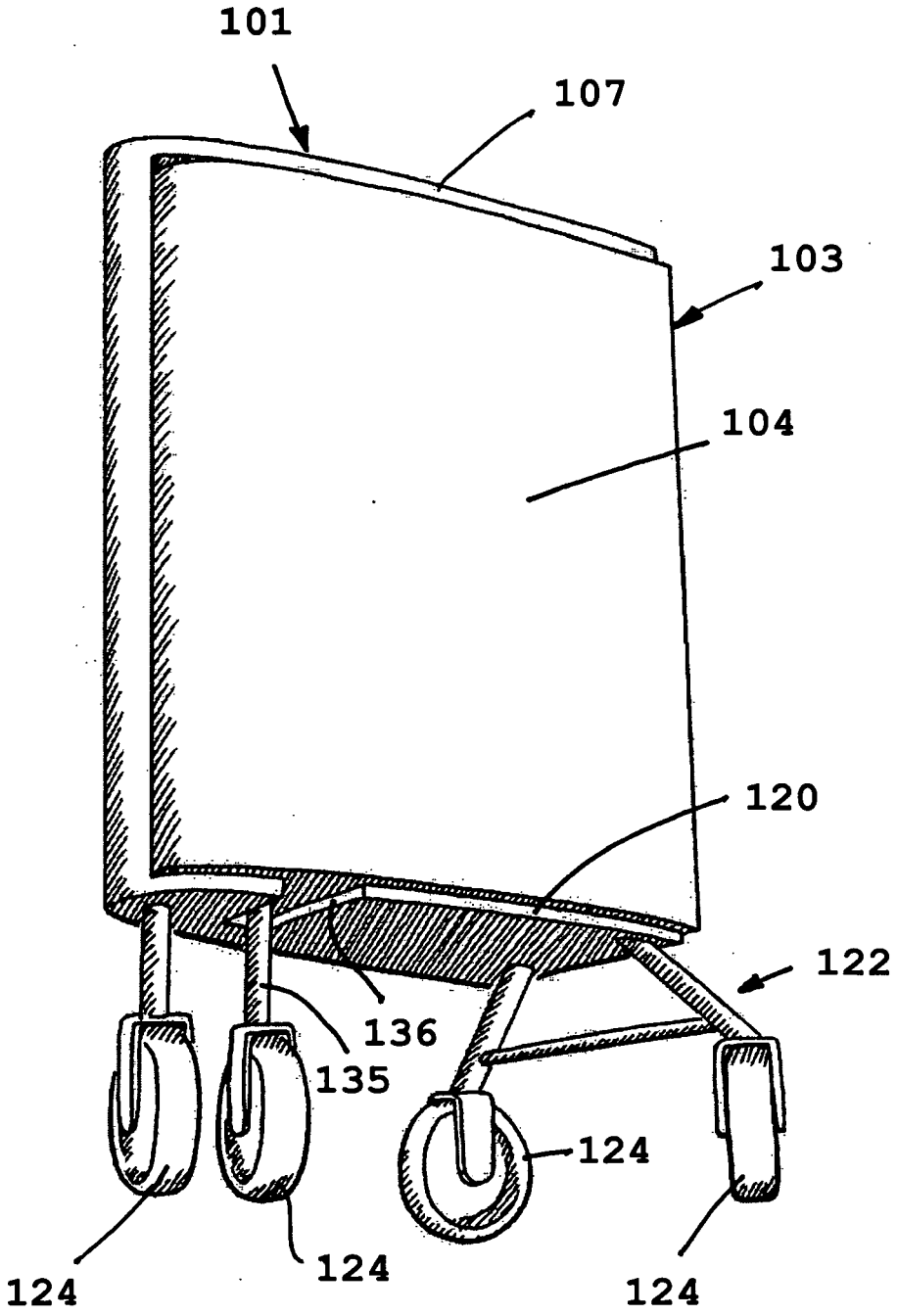
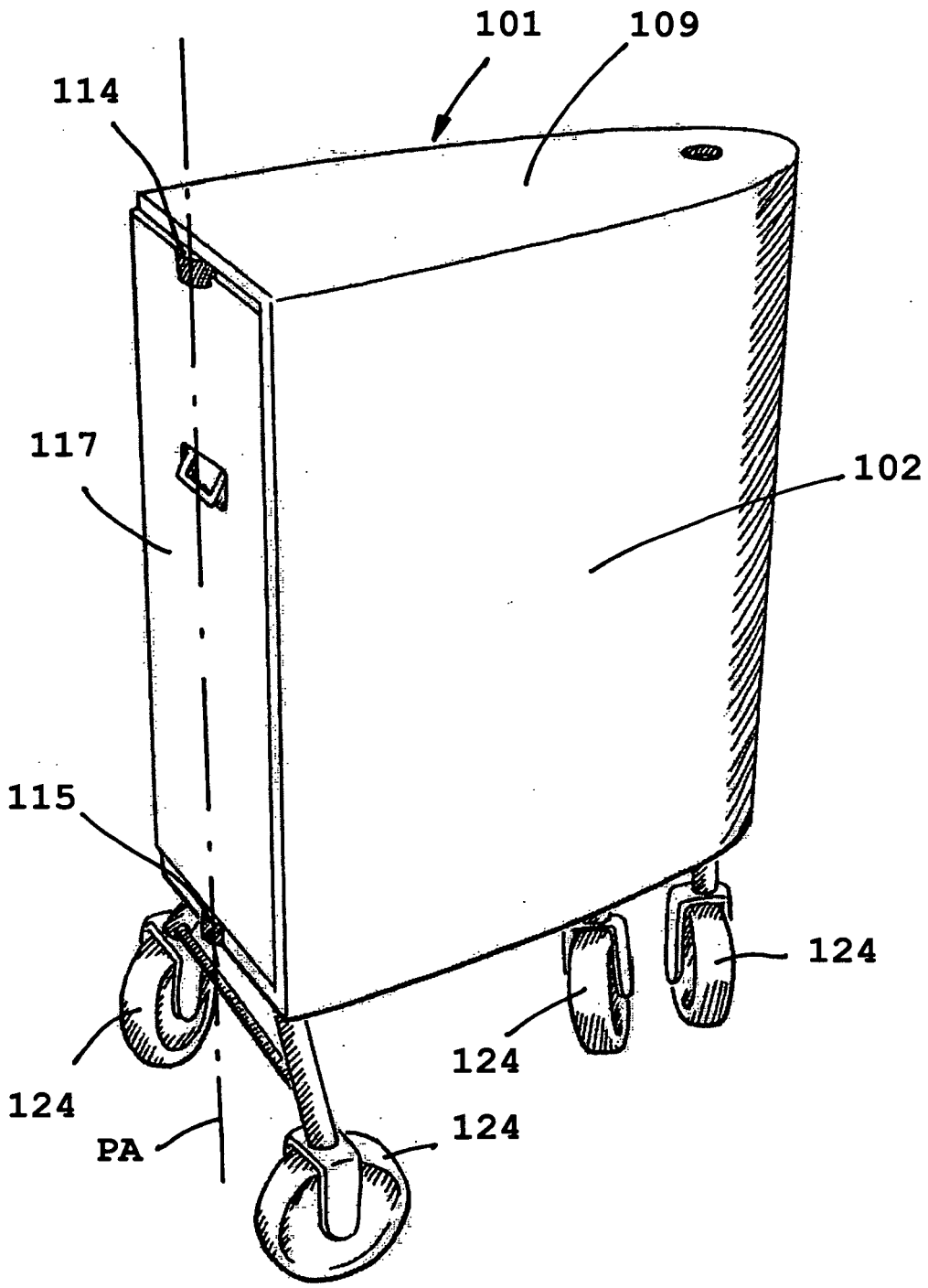


Figure 10



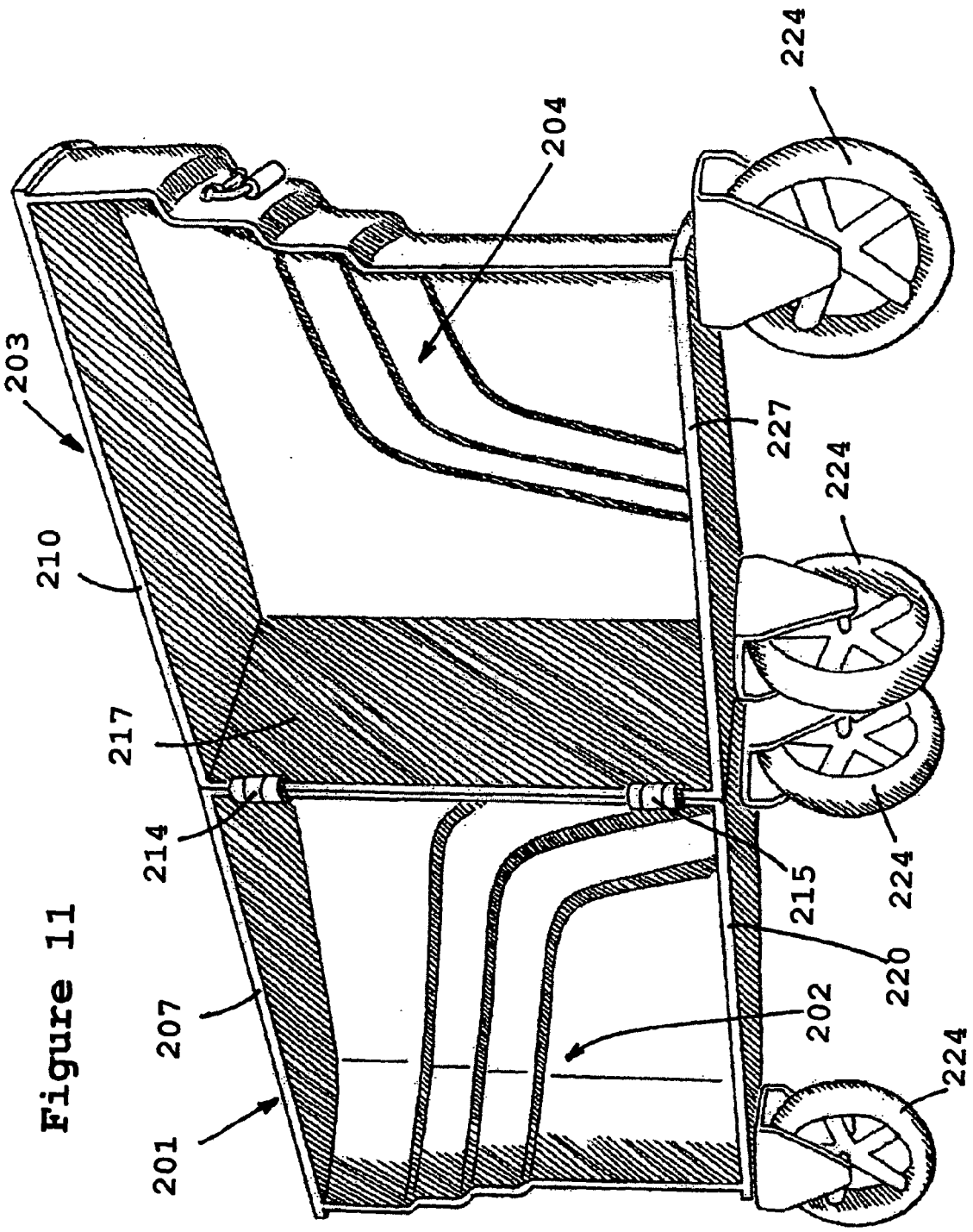


Figure 11

Figure 12

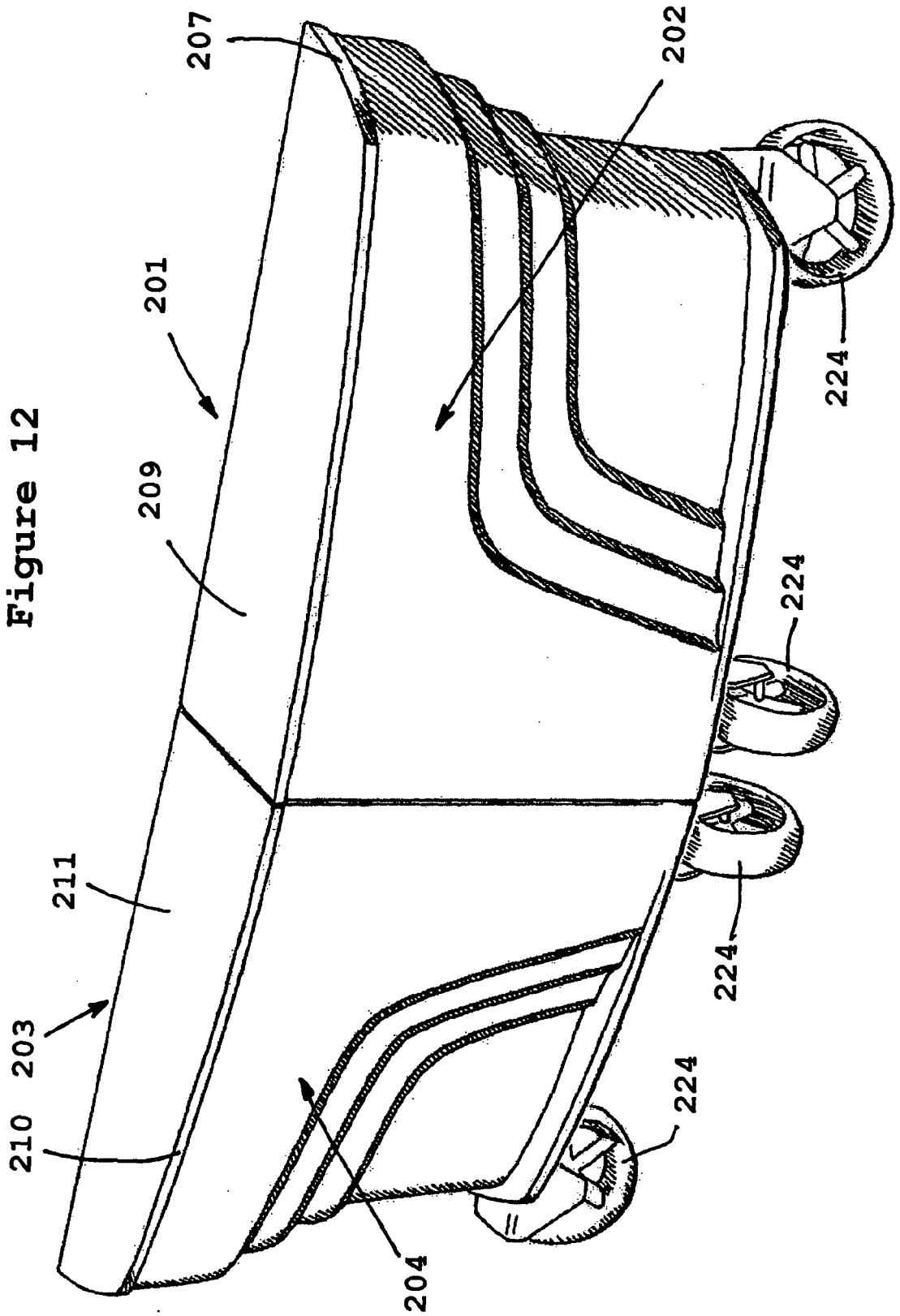
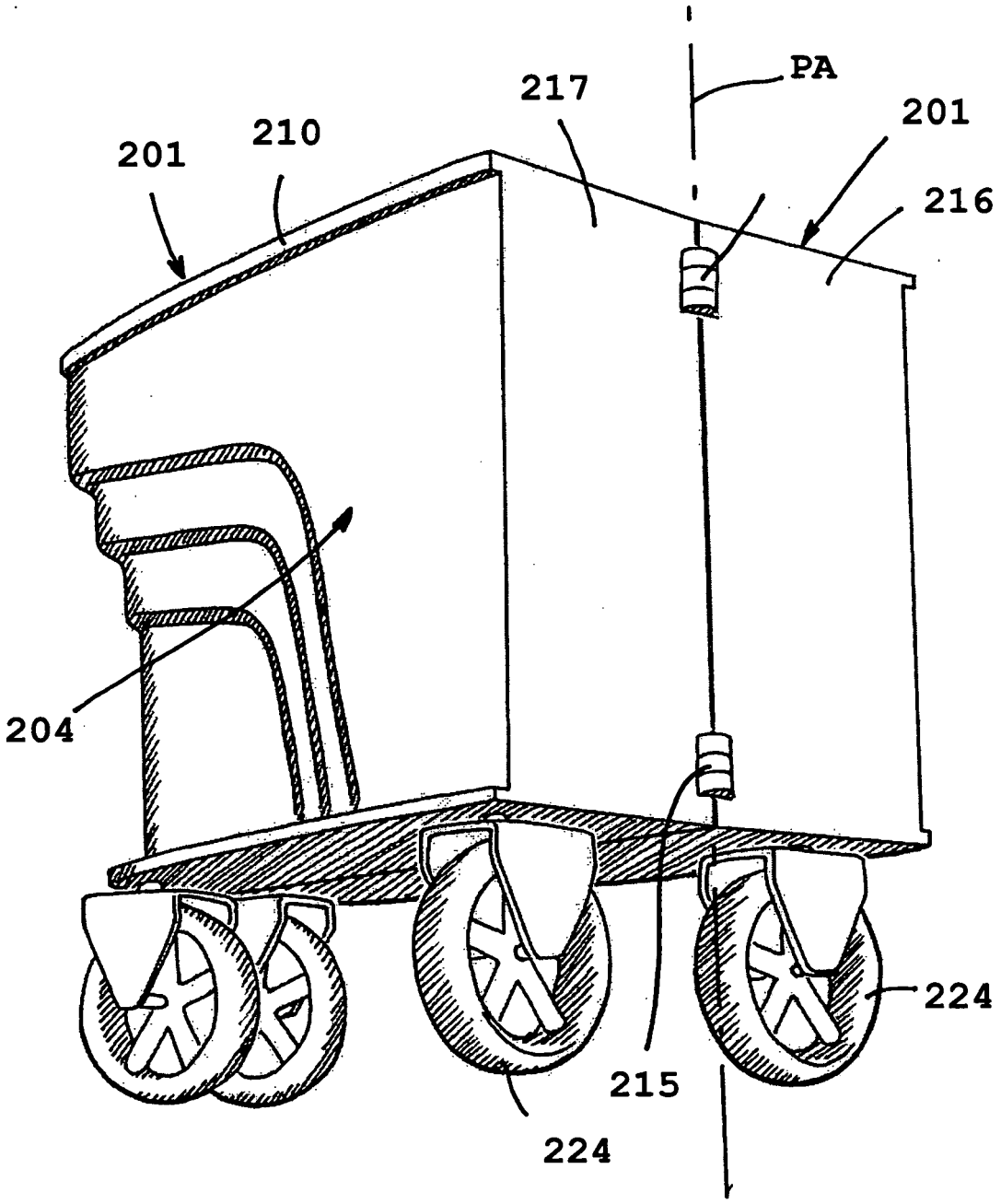


Figure 13



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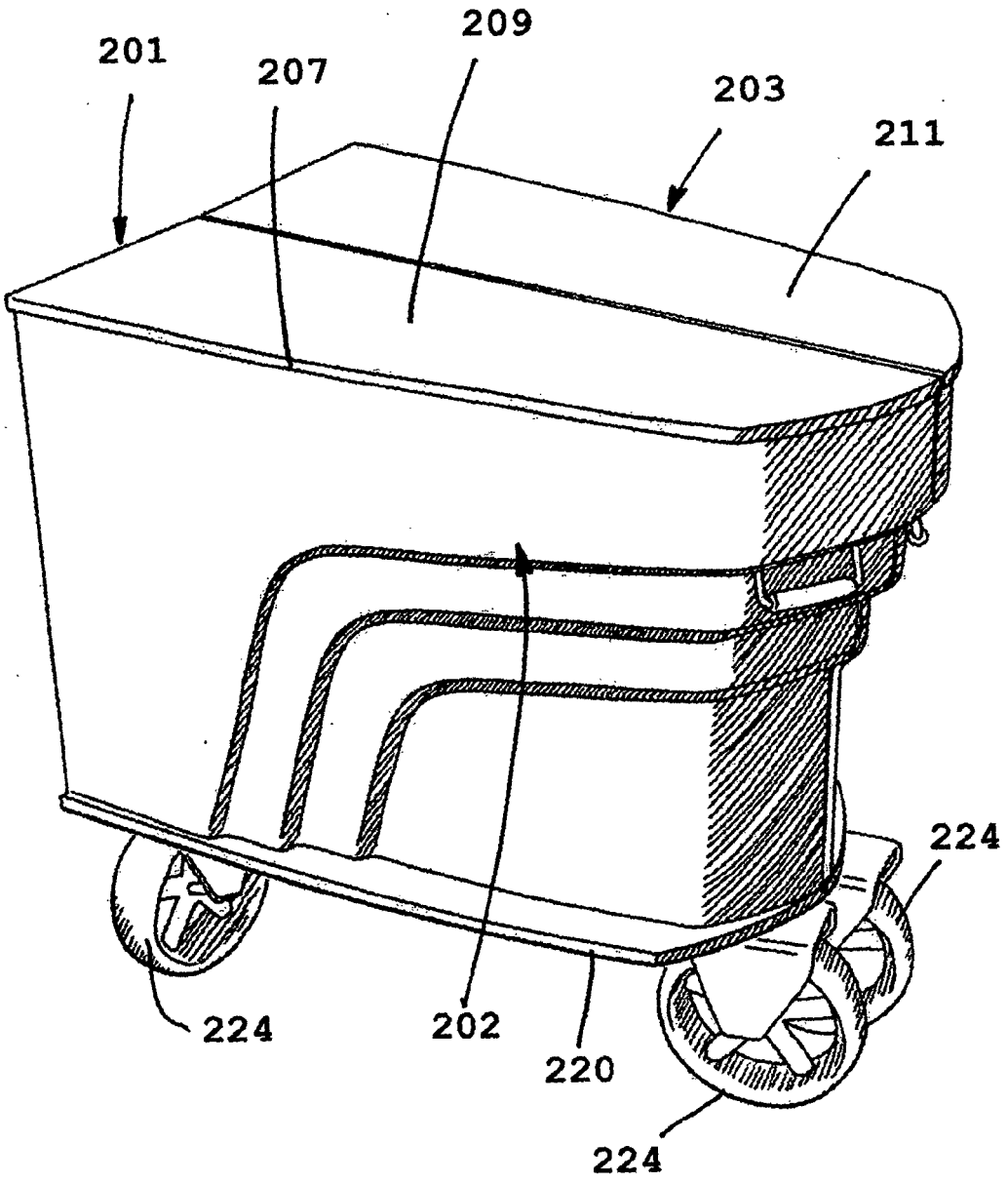


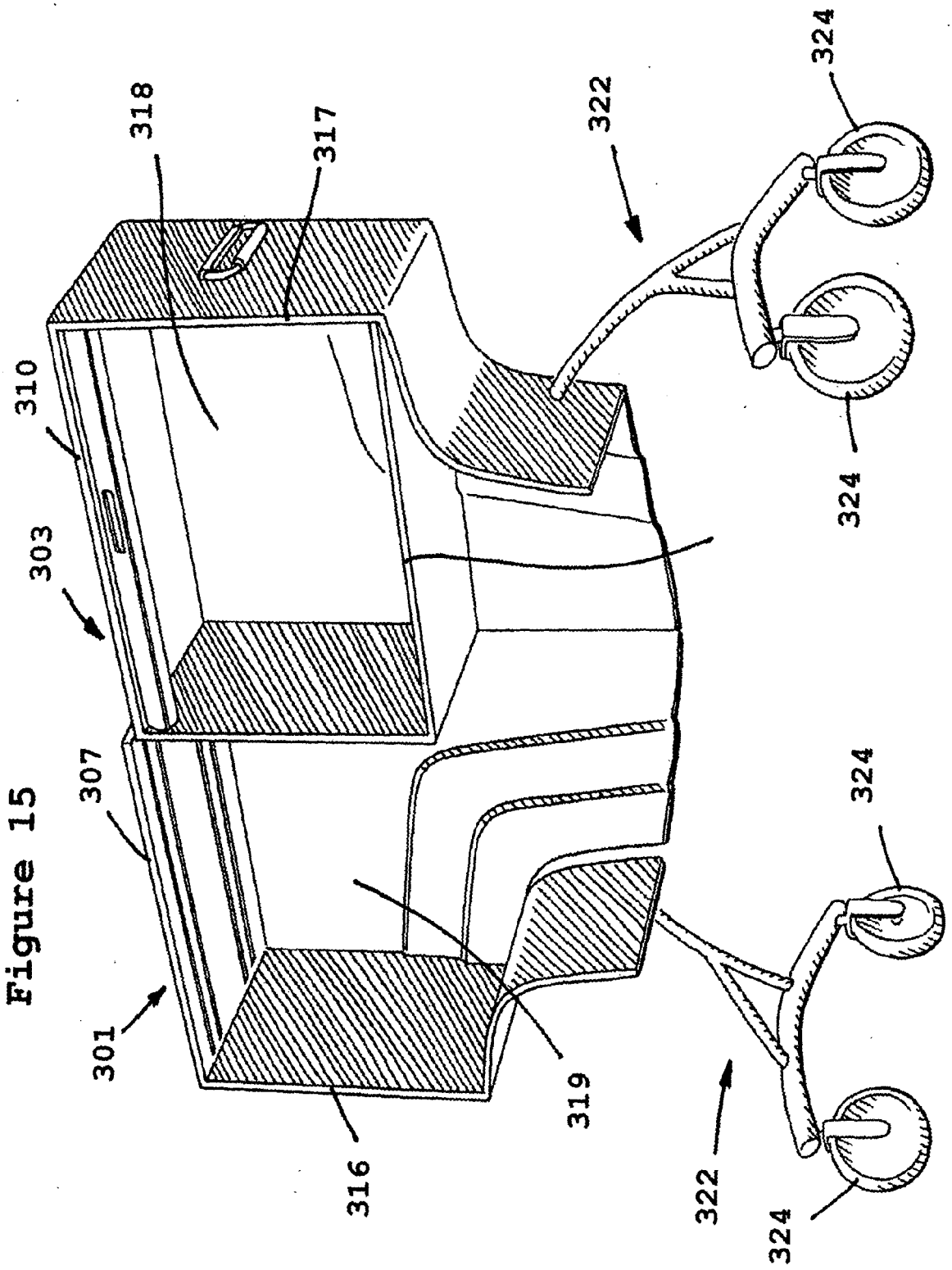
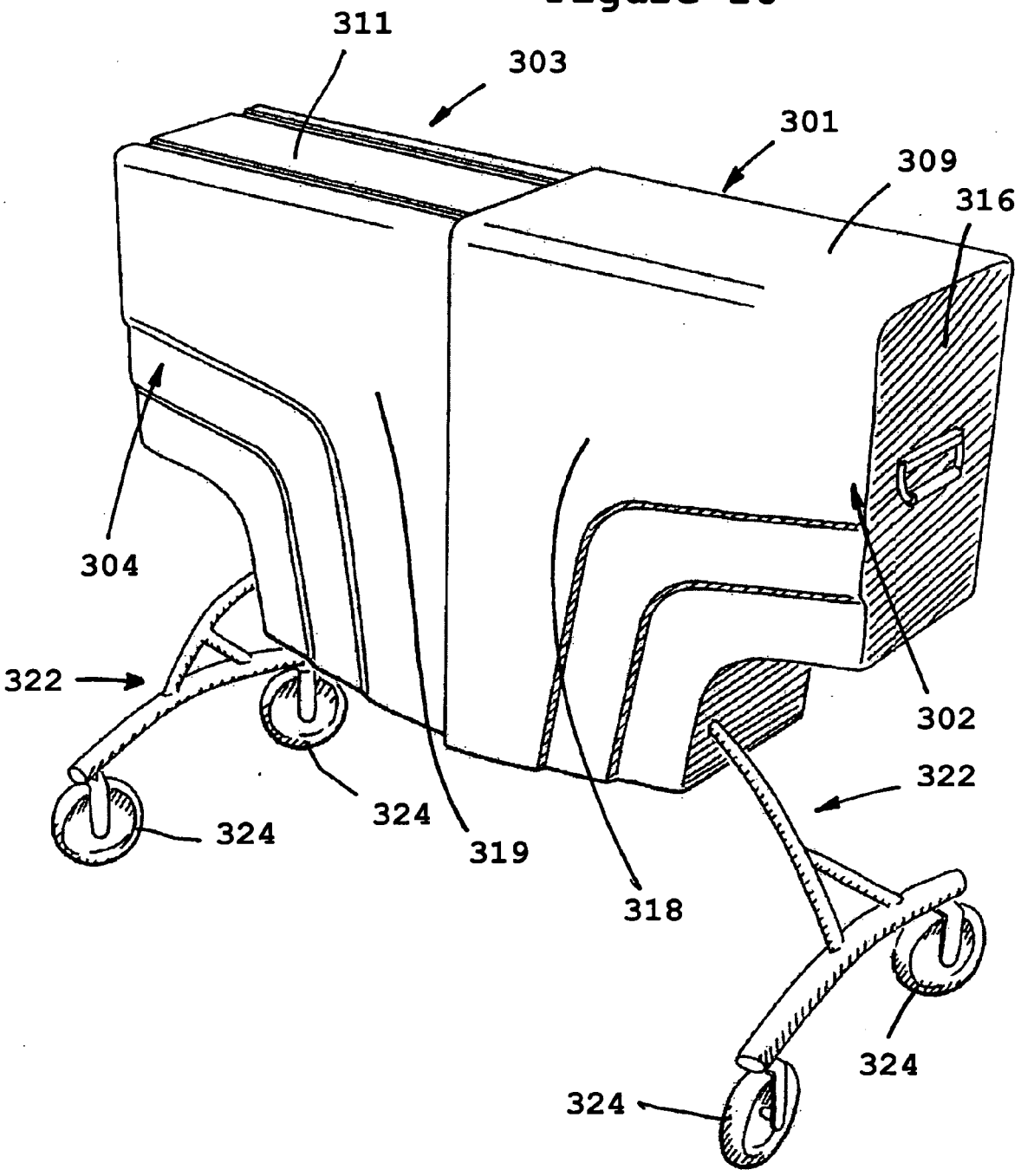


Figure 15

Figure 16



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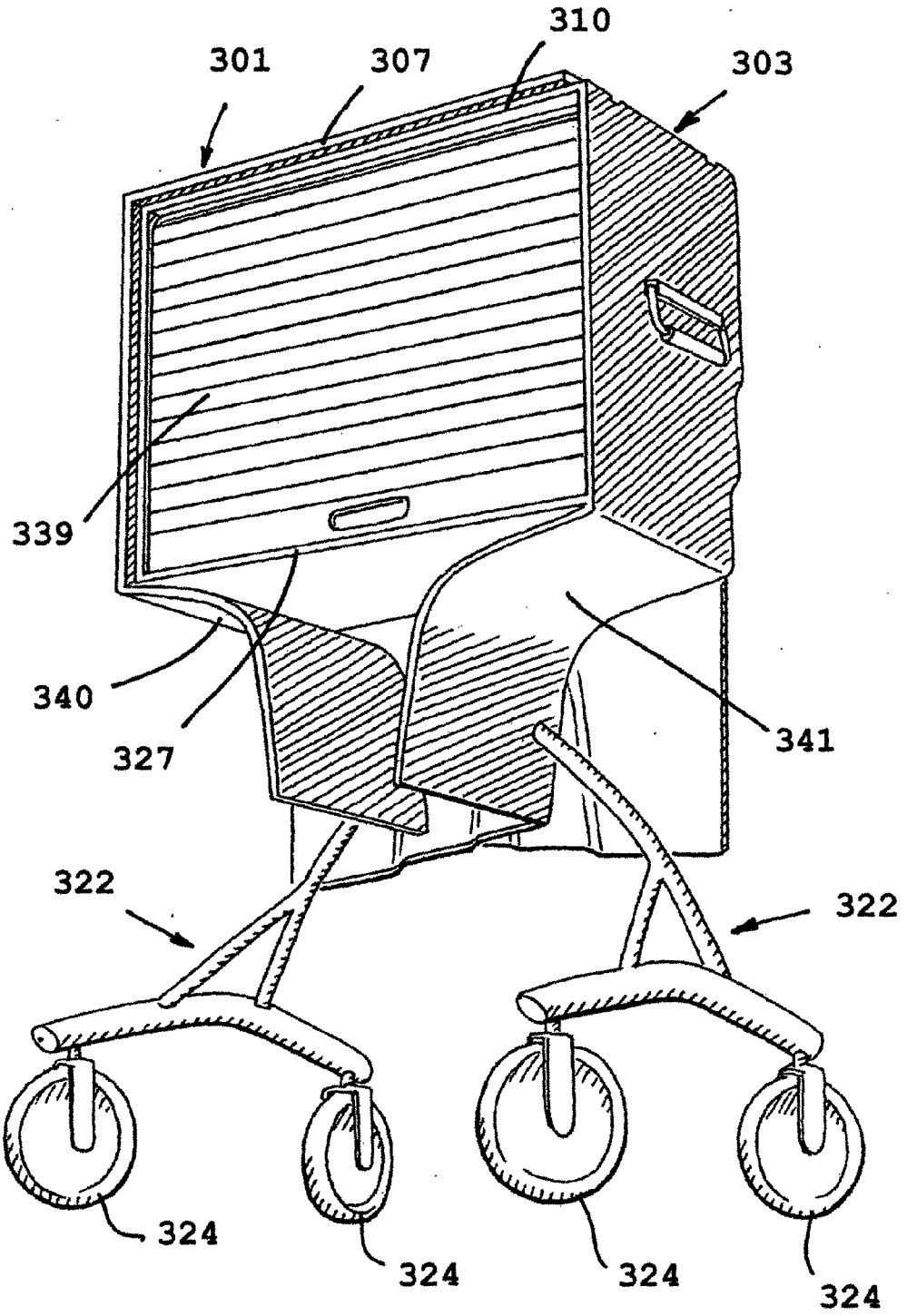

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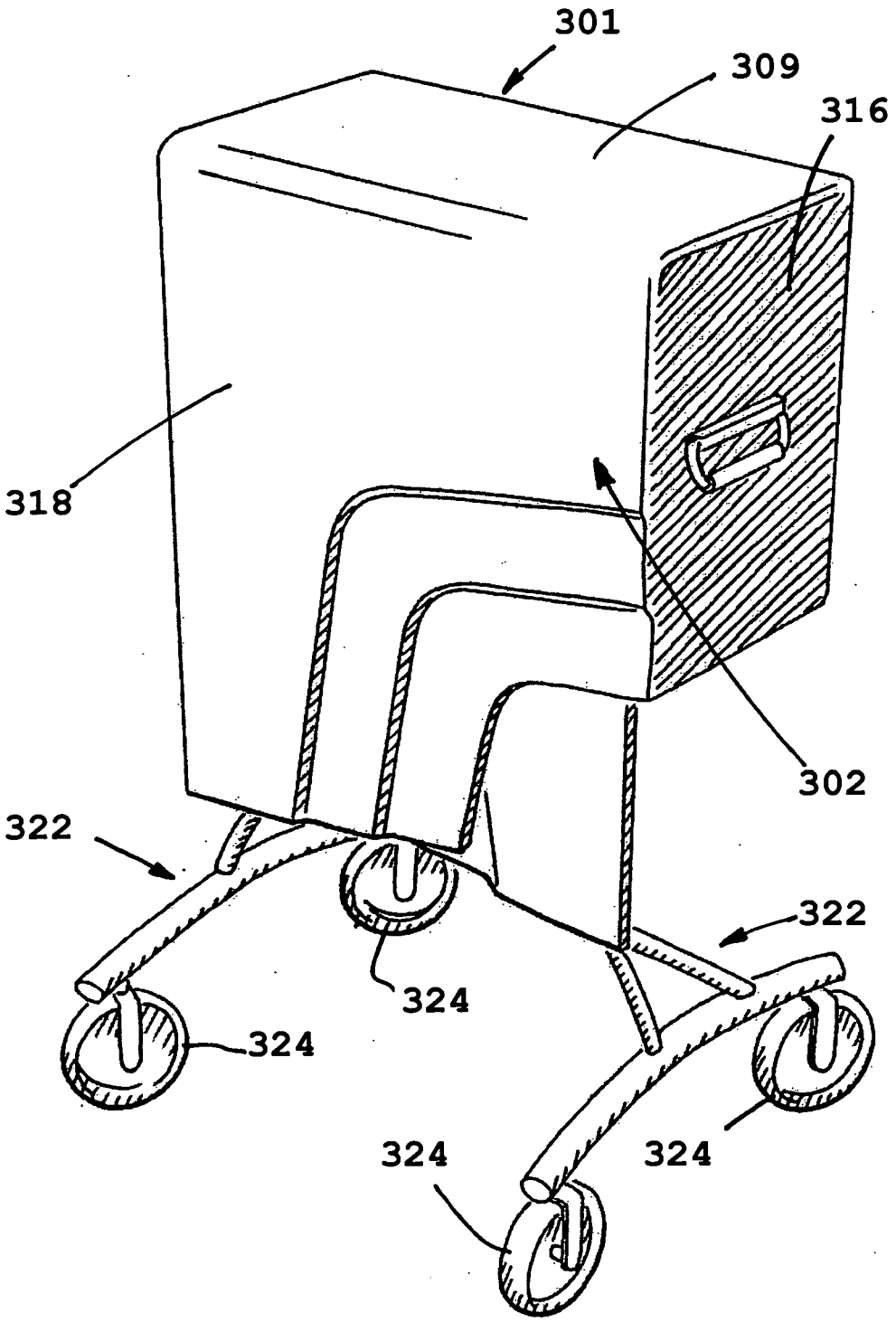

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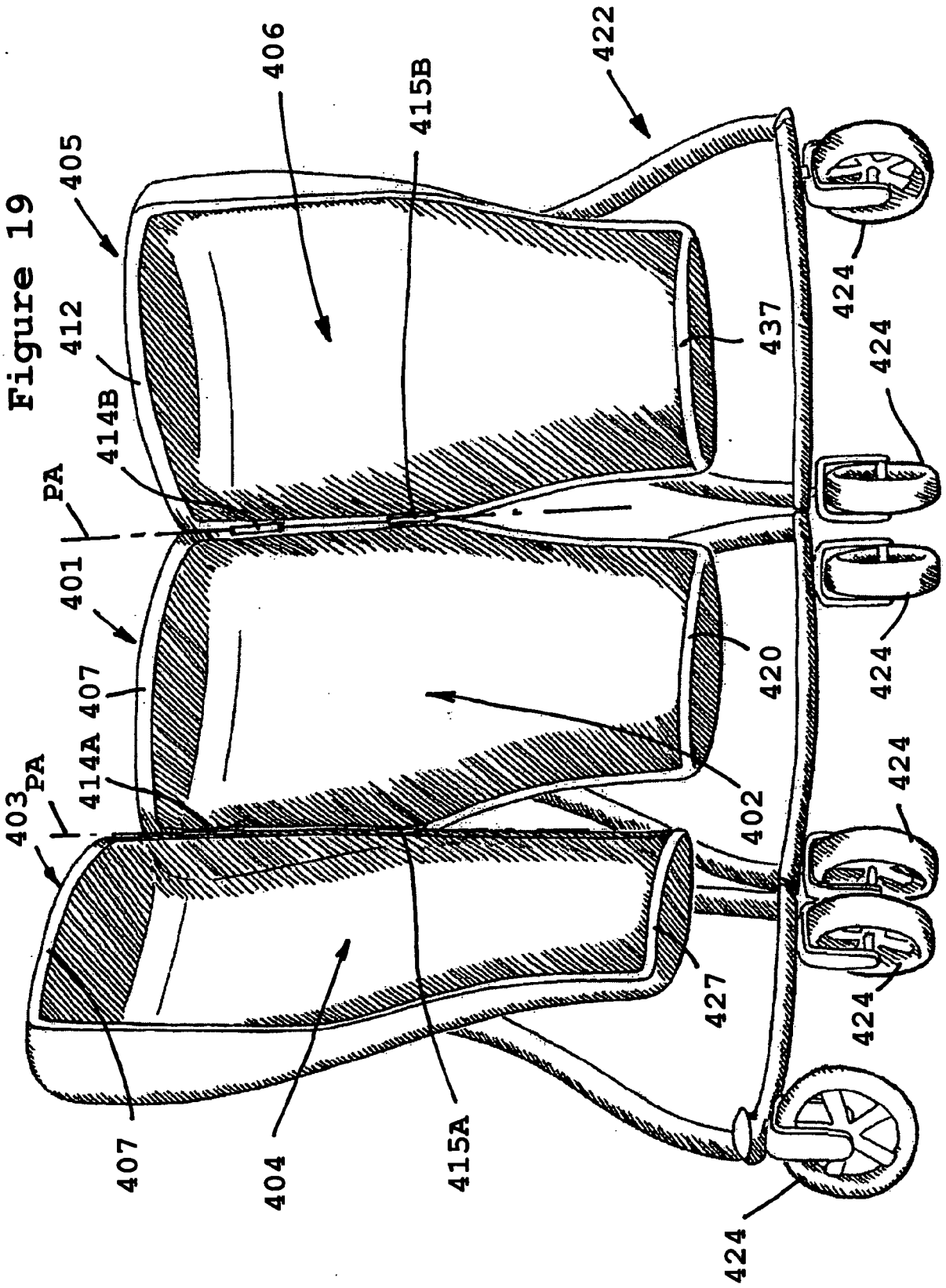
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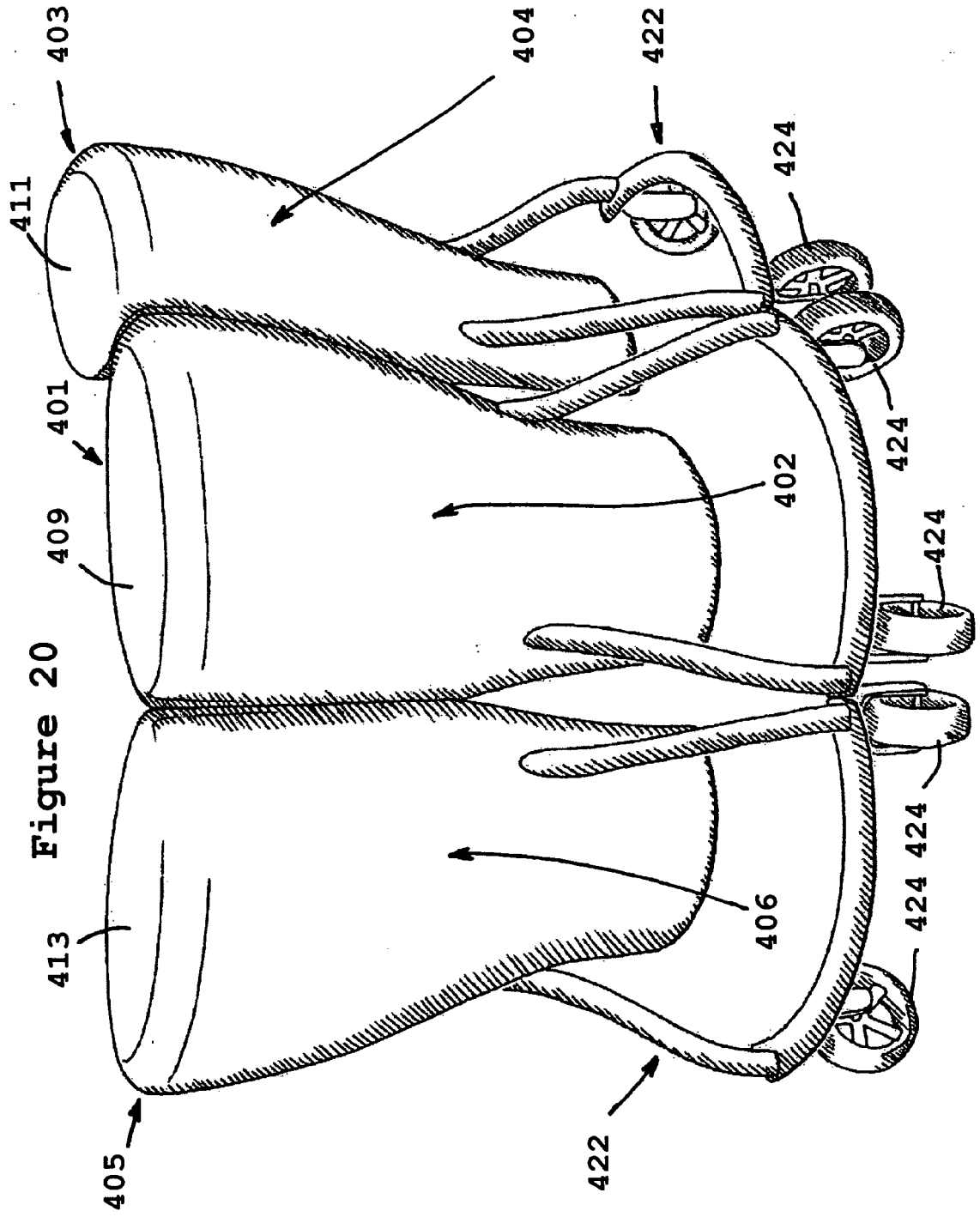
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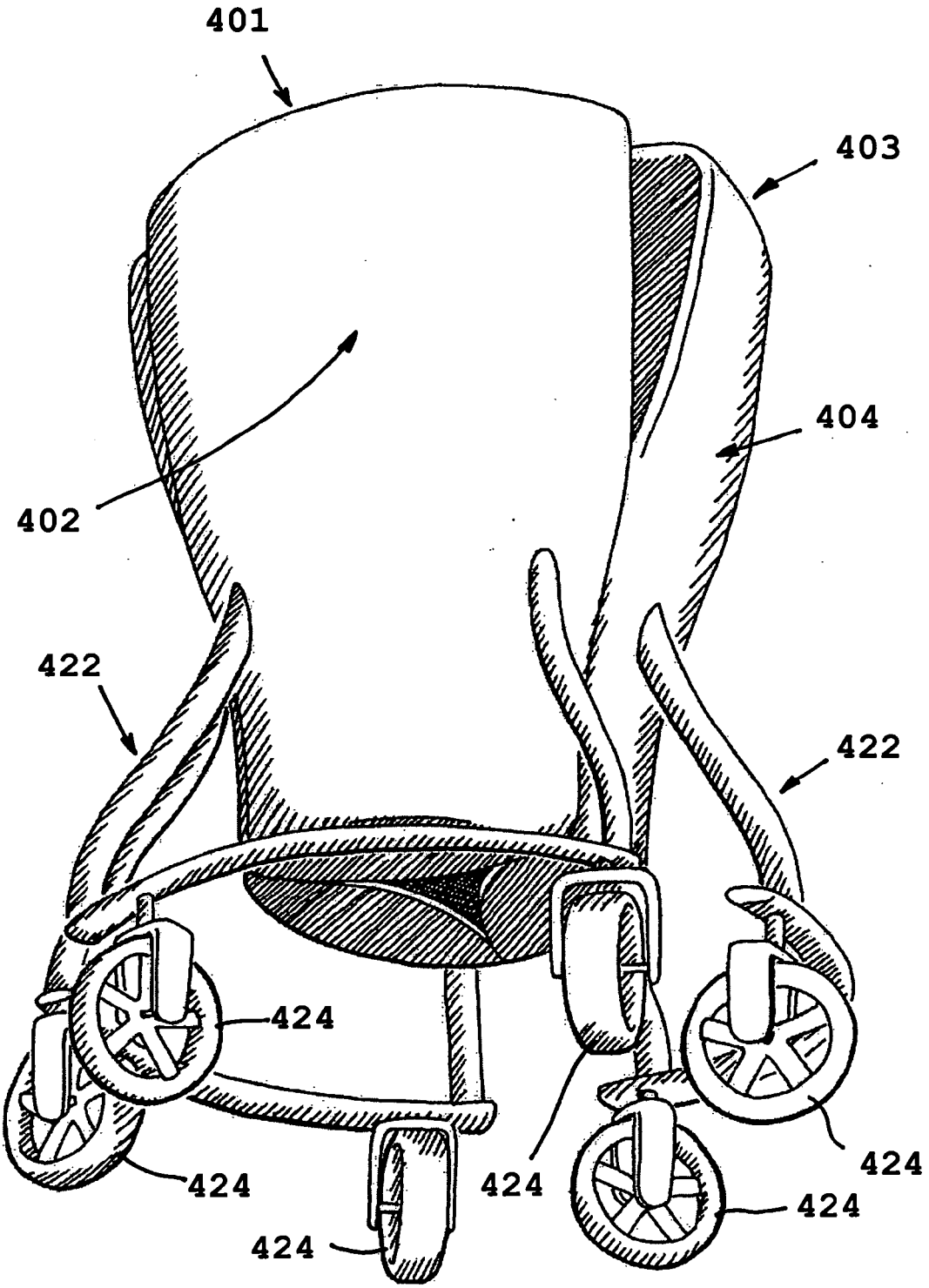
Figure 20

Figure 21



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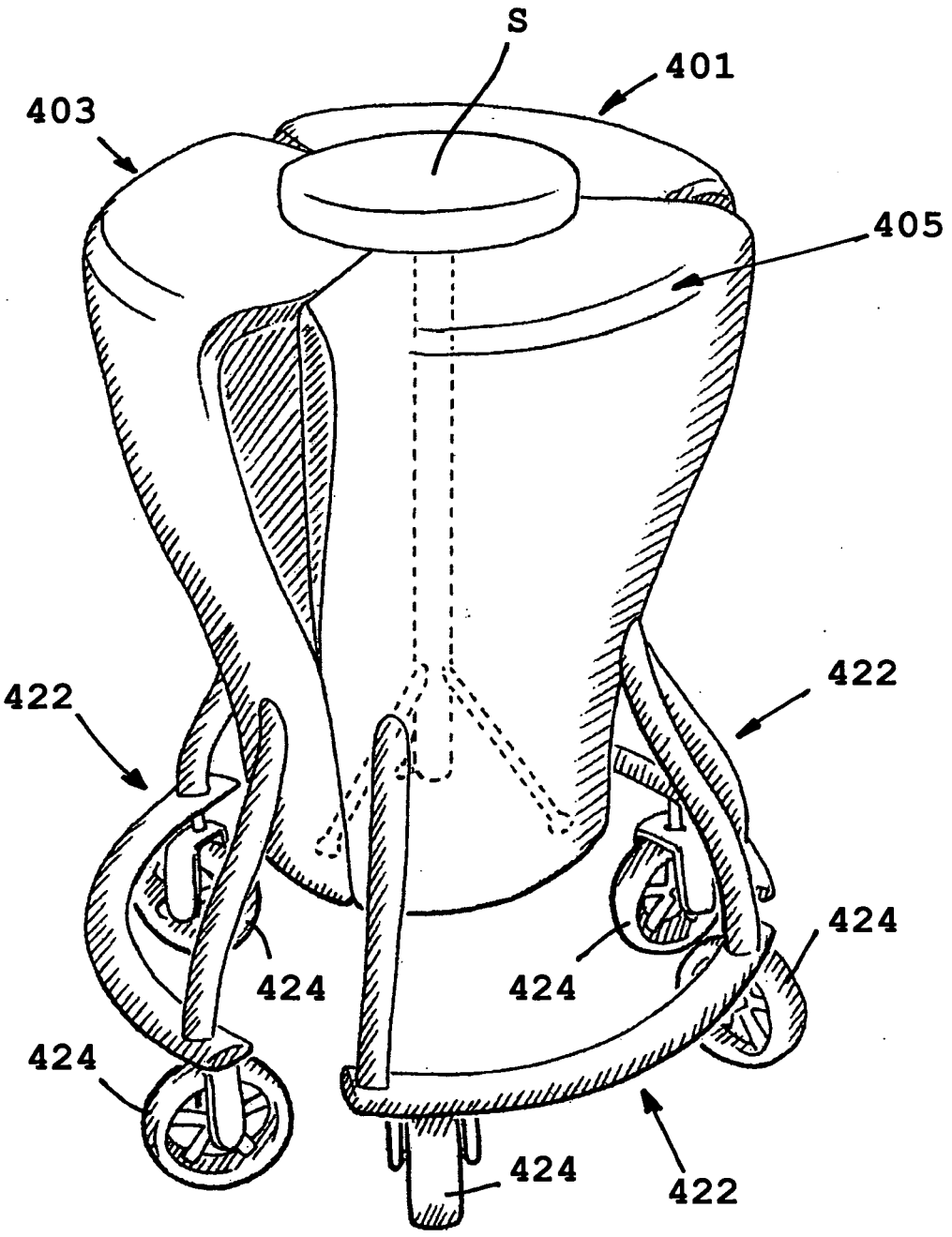


Figure 23

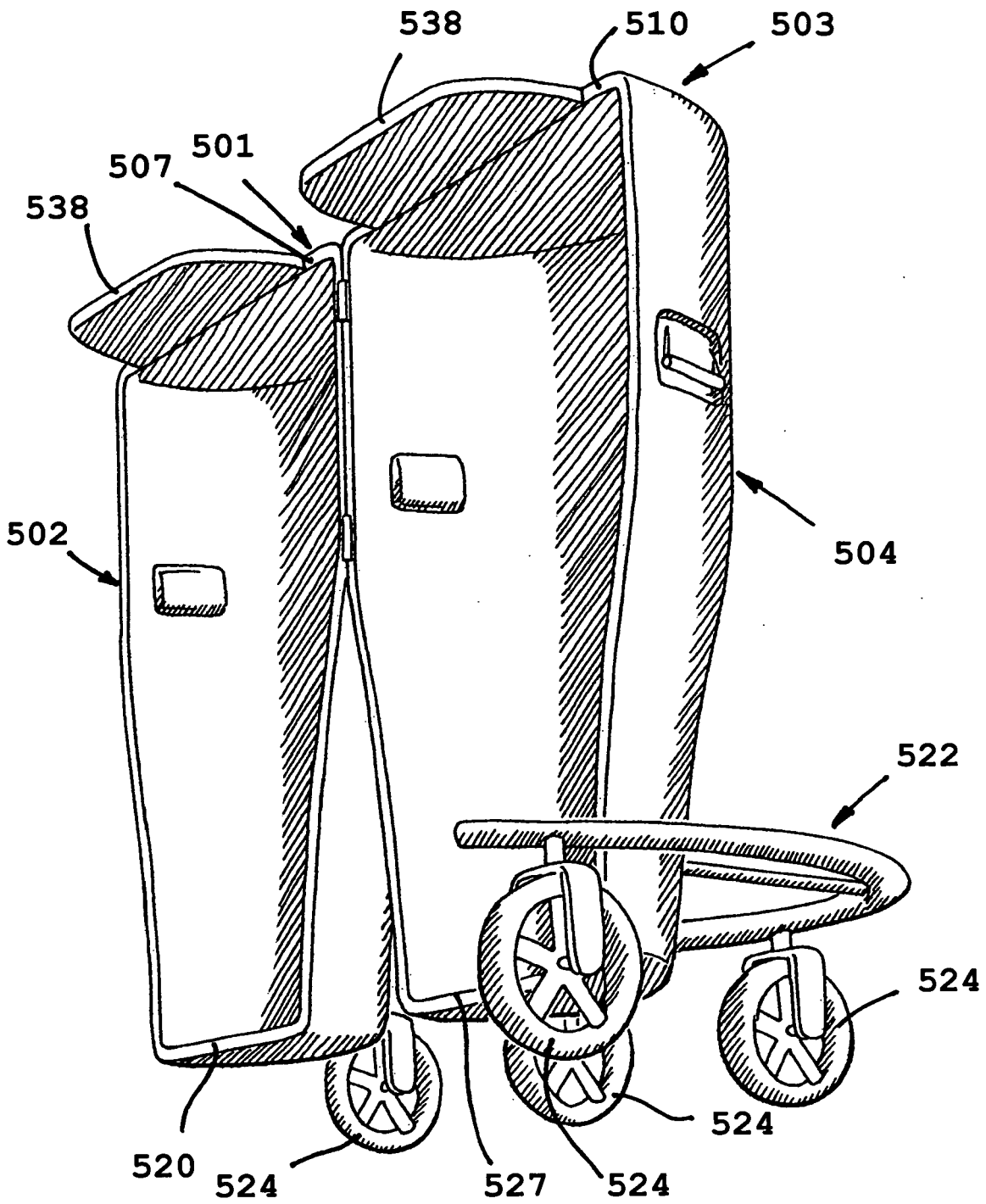


Figure 24

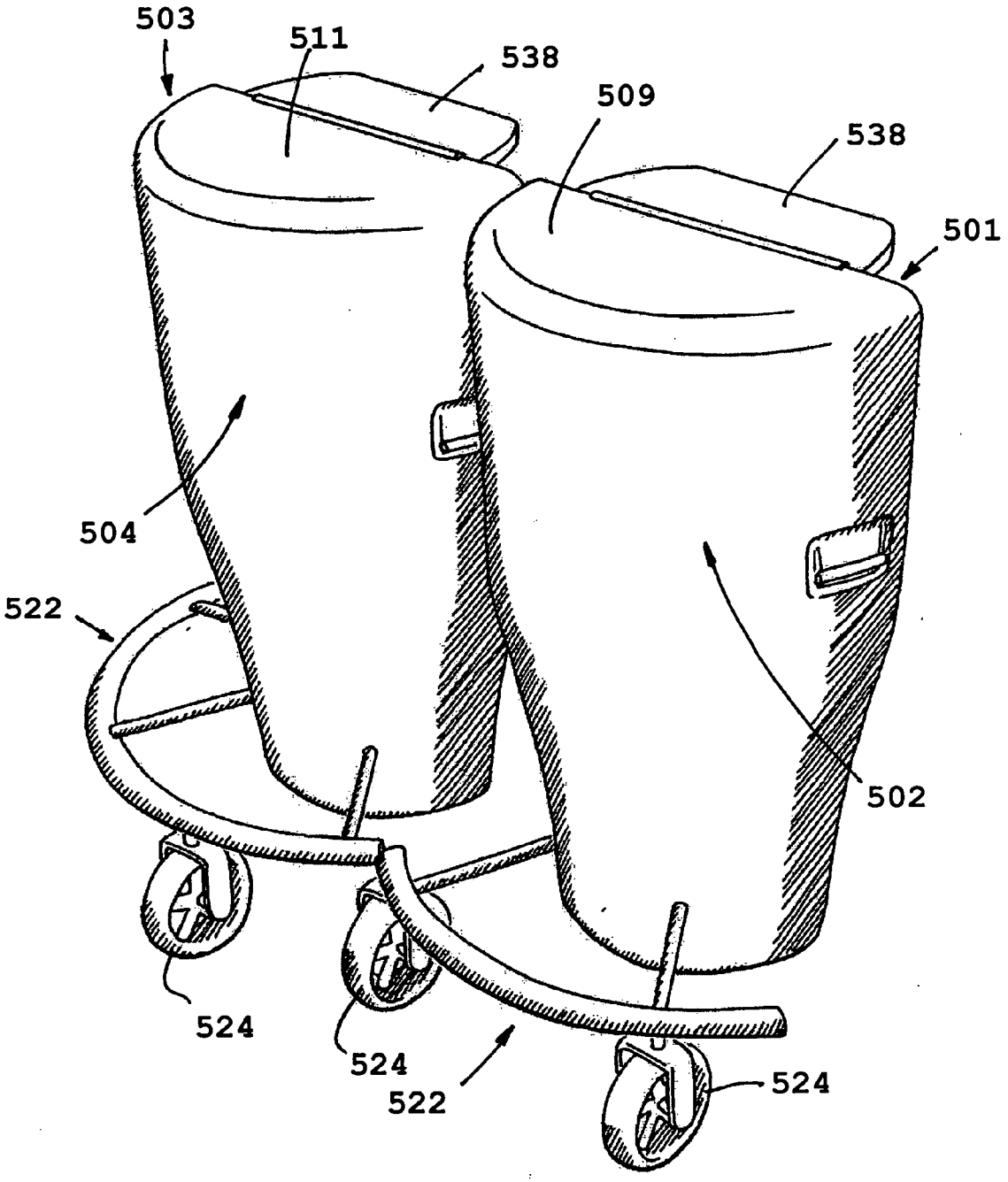


Figure 25

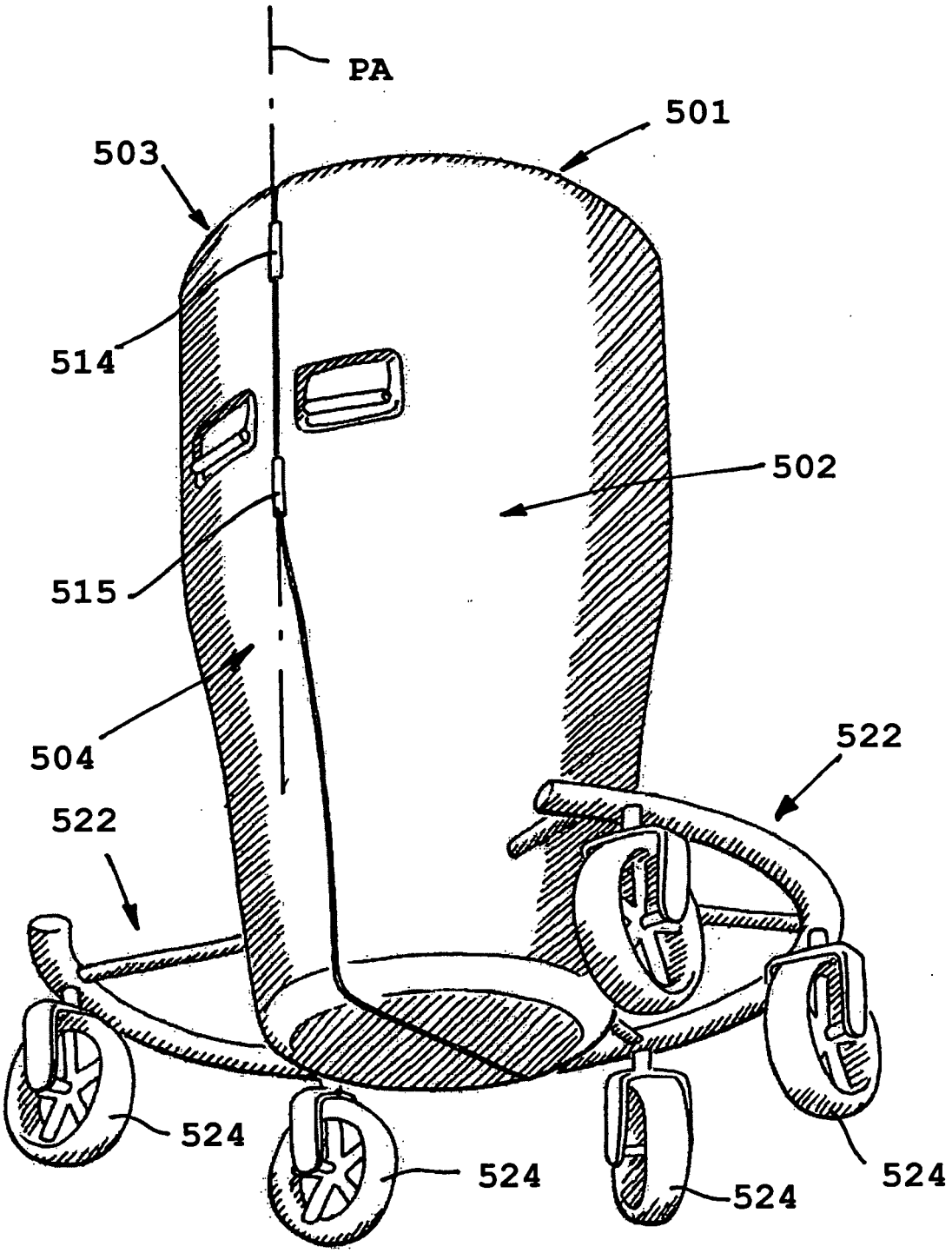
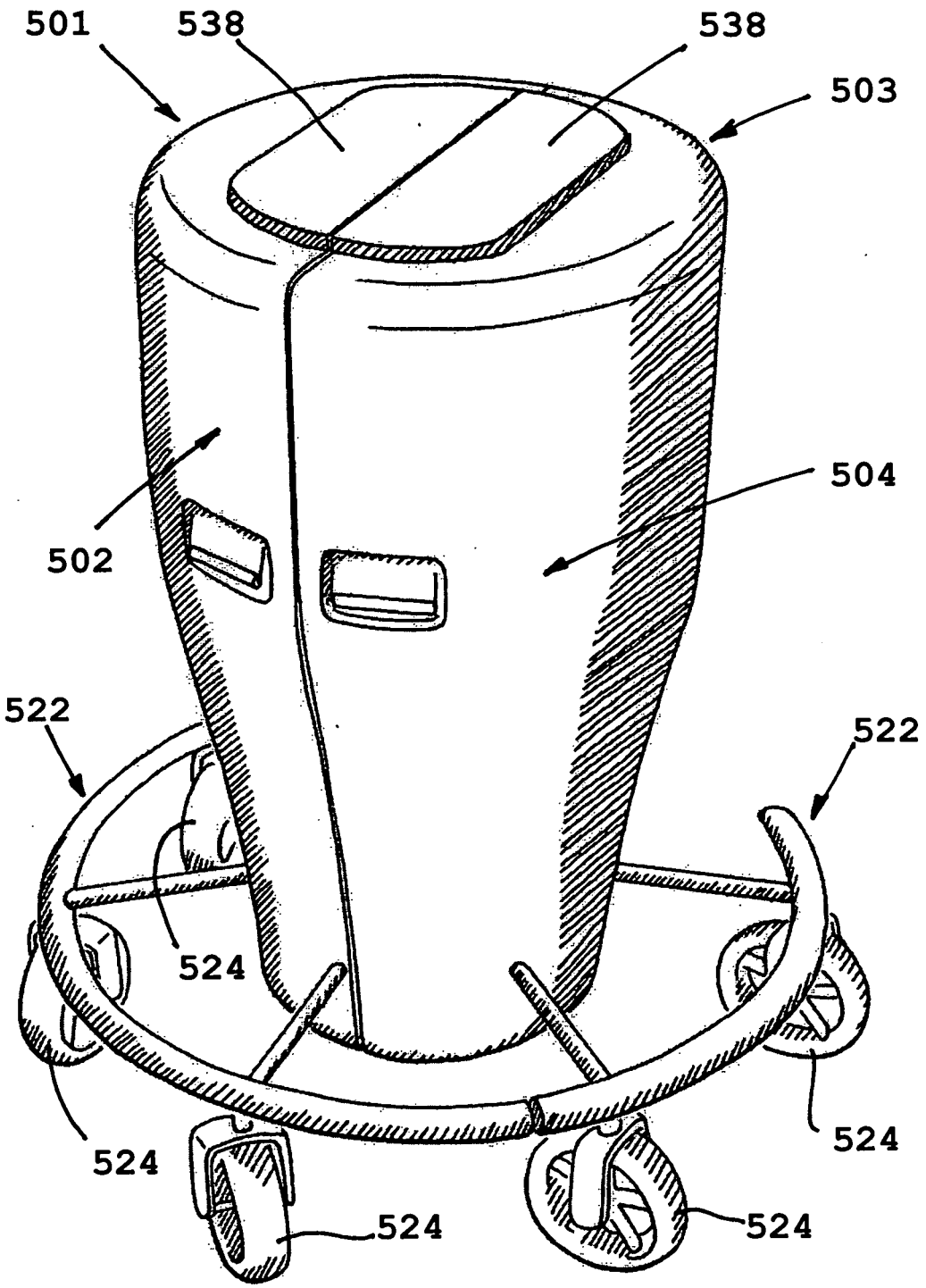


Figure 26



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EUROPEAN SEARCH REPORT

Application Number
EP 06 44 5072

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	DE 29 45 579 A1 (HAMMER LIT GMBH) 27 November 1980 (1980-11-27) * the whole document *	1-4,7,9	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 March 2007	Alff, Robert

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