

(12) **Patent Application Publication**
Chou et al.

(43) **Pub. Date:** **Jan. 29, 2009**

(52) **U.S. Cl.** 220/9.2

(57) **ABSTRACT**

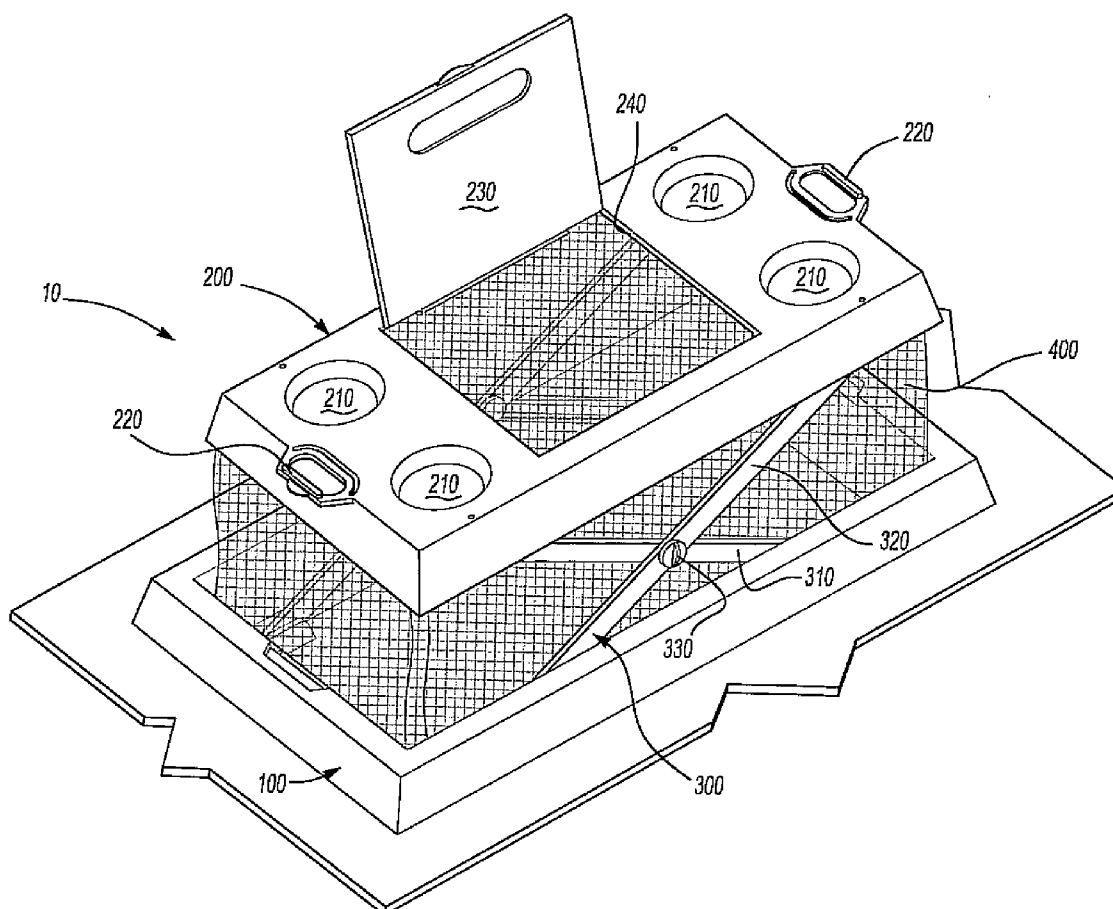
**GIFFORD, KRASS, SPRINKLE,
ANDERSON & CITKOWSKI, P.C.
P.O. BOX 7021
TROY, MI 48007-7021 (US)**

Disclosed is a collapsible storage bin for use in a motor vehicle. In particular instances, the collapsible storage bin can have a generally planar lower rigid member and a generally planar upper rigid member oppositely disposed from said lower rigid member. The upper rigid member can have a recess for placement of an item and an opening providing access to a collapsible storage bin underneath the upper rigid member. A collapsible support brace pivotally attached to and adjoining the upper rigid member to the lower rigid member is included. The support brace is operable to move between an extended upright position and a collapsed down position, the extended upright position defining a spaced apart relationship between the lower rigid member and the upper rigid member. A flexible sidewall is included and is attached to the upper rigid member and defines a side surface of the collapsible storage bin underneath the upper rigid member when the collapsible support brace is in the extended upright position. The flexible sidewall extends completely around the storage bin volume.

(22) Filed: **Jul. 27, 2007**

Publication Classification

(51) **Int. Cl.**
A45C 7/00 (2006.01)



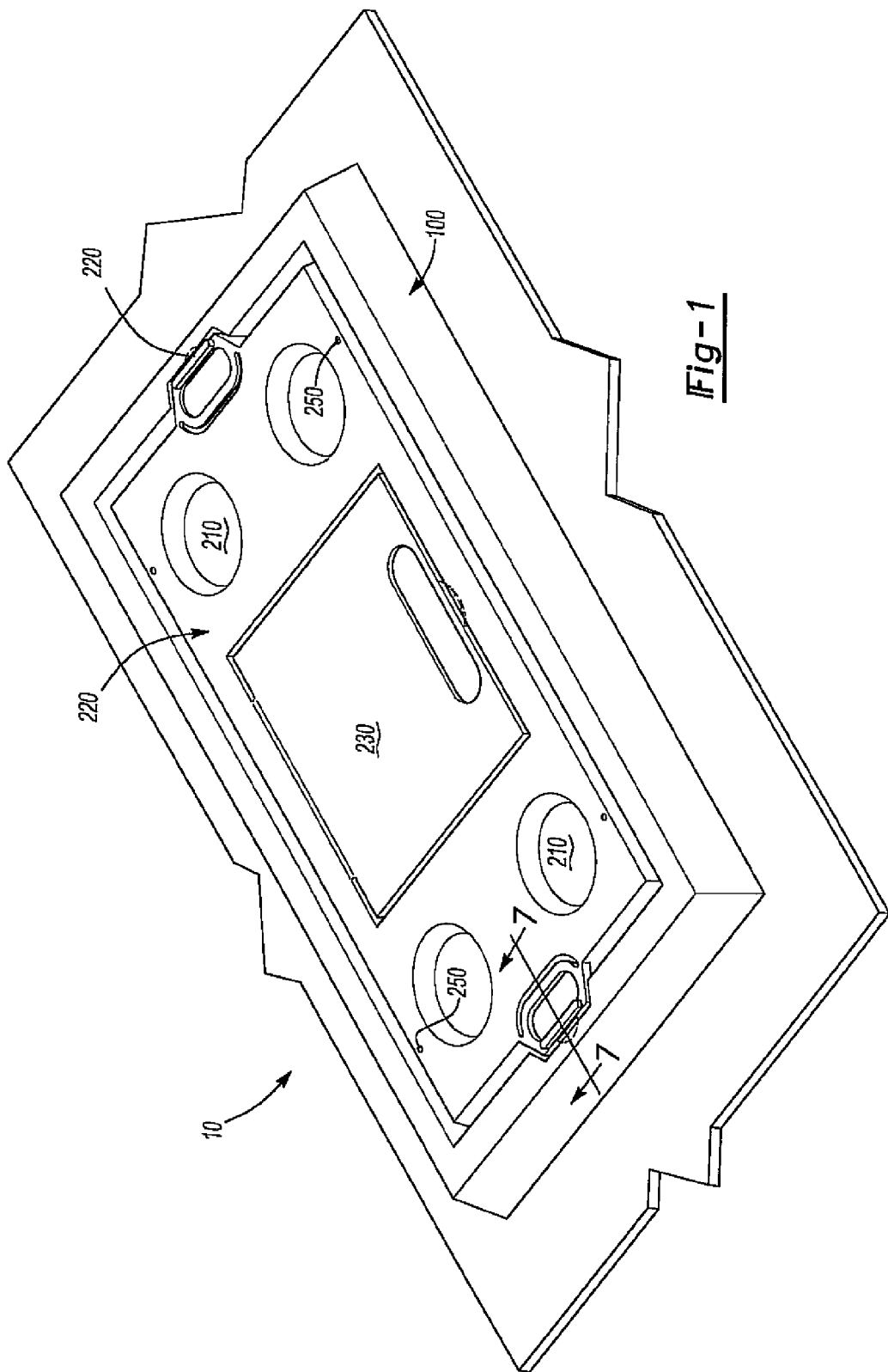
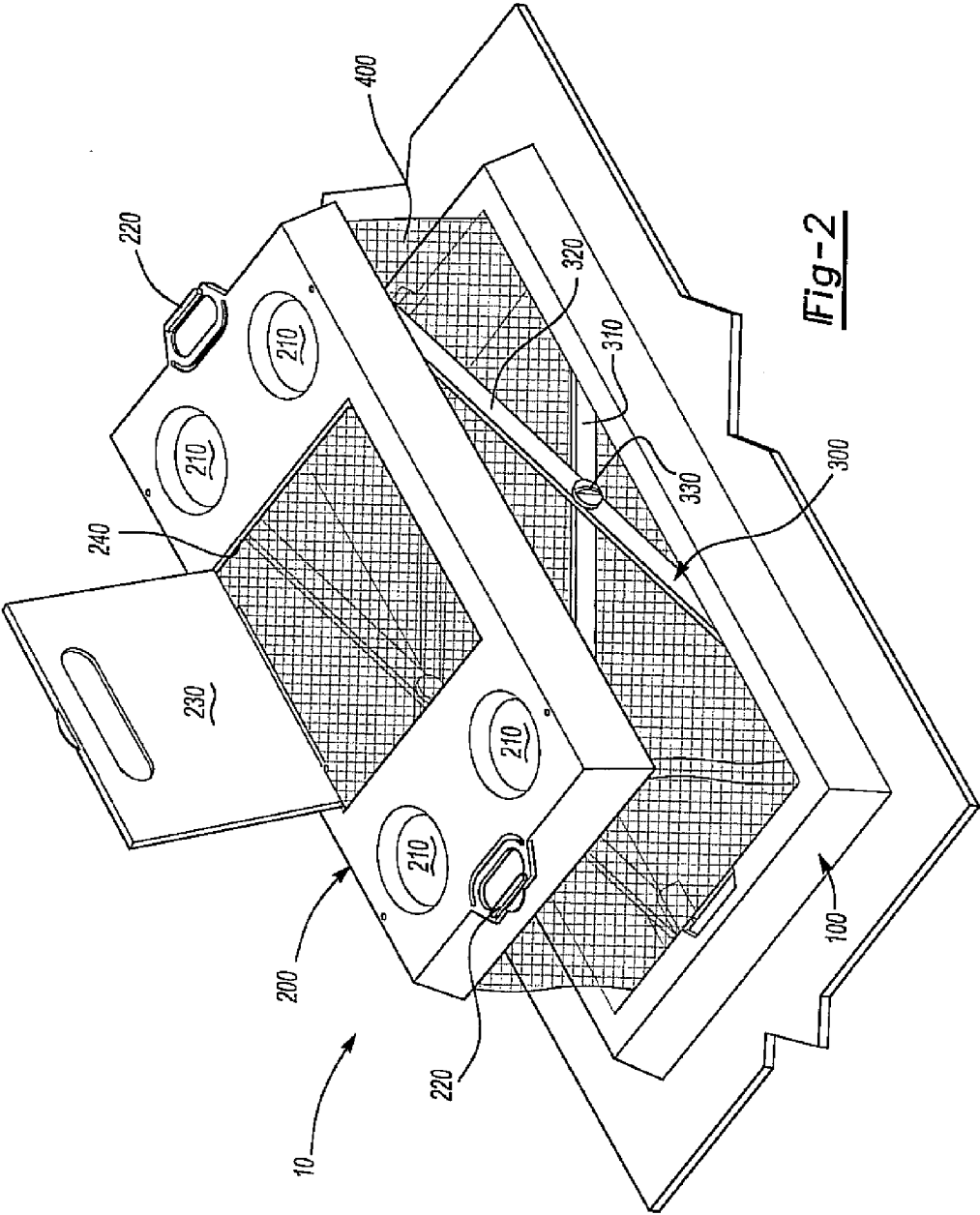


Fig-1



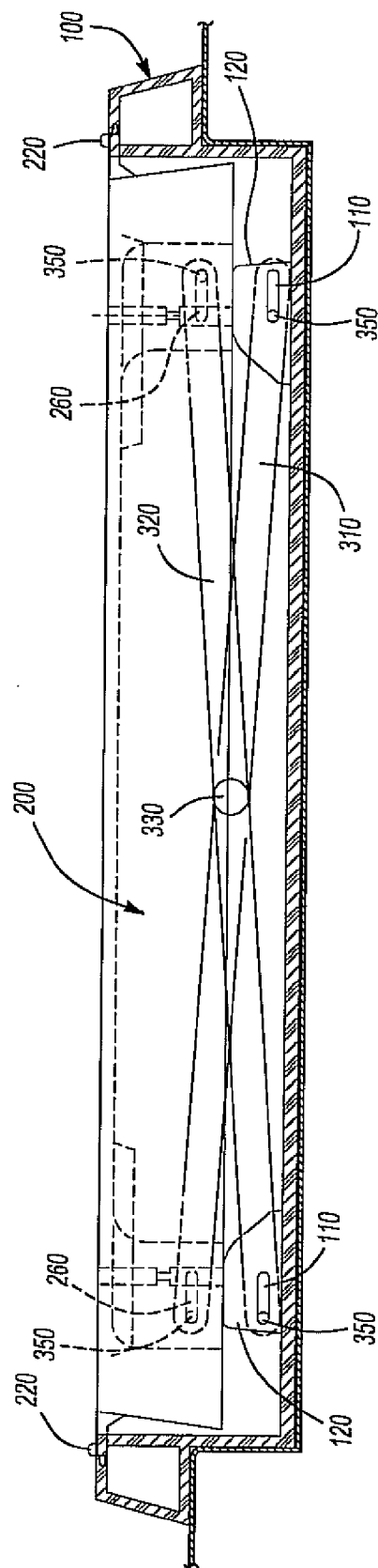


Fig-3

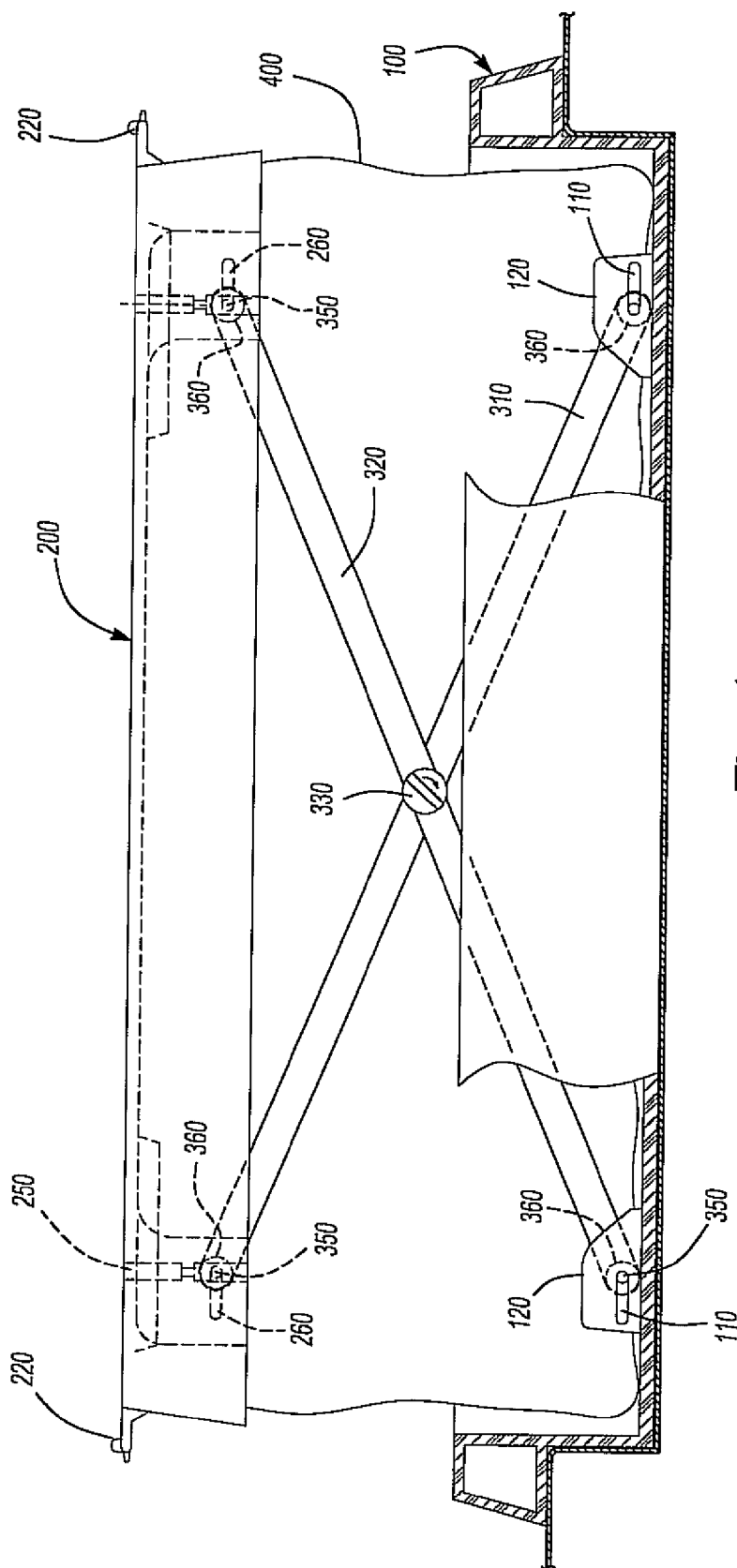
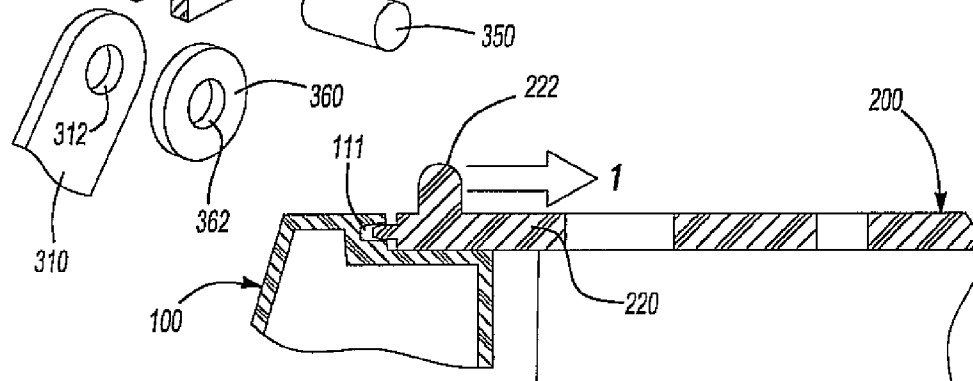
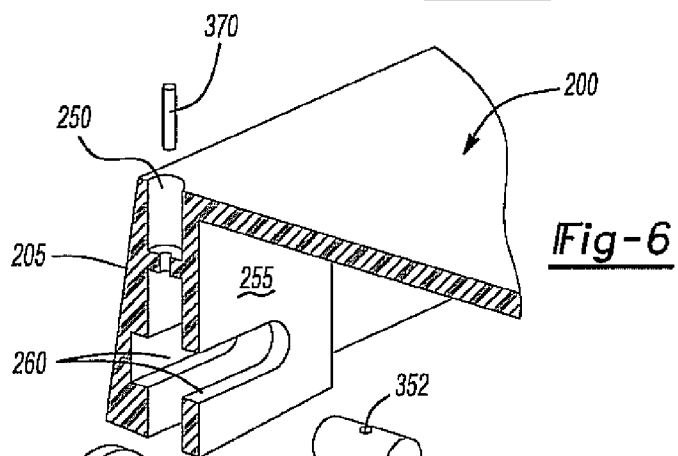
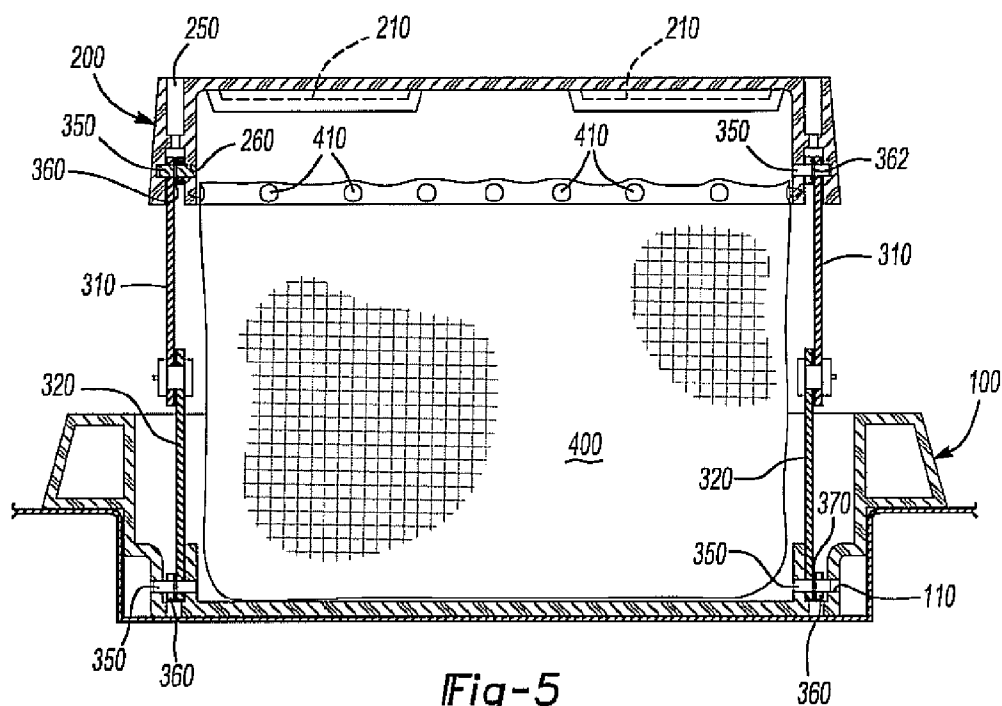


Fig-4



SOFT SIDE COLLAPSIBLE STORAGE BIN

FIELD OF THE INVENTION

[0001] This invention relates generally to a storage bin. More specifically the invention relates to a soft side collapsible storage bin.

BACKGROUND OF THE INVENTION

[0002] Storage compartments and storage bins are currently found in motor vehicles in the form of glove compartments, console recesses, side panels of doors and the like. In addition, some consoles provide recesses wherein a beverage container can be placed. The presence and use of such storage containers and/or beverage container holders provide occupants of the motor vehicle with convenience regarding the placement of items such as sunglasses, maps, coins, writing instruments and the like. Heretofore storage compartments typically provide a fixed and rigid structure that can contain items to be stored. And although convenient at times for an occupant of the motor vehicle, when not in use these storage compartments can occupy limited space within the interior. Therefore, it would be advantageous to have a collapsible storage compartment that could collapse and occupy a minimum of space when not in use.

SUMMARY OF THE INVENTION

[0003] Disclosed is a collapsible storage bin for use in a motor vehicle. In particular instances, the collapsible storage bin can have a generally planar lower rigid member and a generally planar upper rigid member oppositely disposed from said lower rigid member. The upper rigid member can have a recess for placement of an item and an opening providing access to a collapsible storage bin underneath the upper rigid member. A collapsible support brace pivotally attached to the upper rigid member and the lower rigid member is included, the support brace also adjoining the upper rigid member to the lower rigid member. The support brace is operable to move between an extended upright position and a collapsed down position, the extended upright position defining a spaced apart relationship between the lower rigid member and the upper rigid member. A flexible sidewall attached to the upper rigid member is included and defines a side surface of the collapsible storage bin underneath the upper rigid member when the collapsible support brace is in the extended upright position. The flexible sidewall extends completely around the storage bin volume.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a perspective view of an embodiment of the present invention in a closed position;

[0005] FIG. 2 is a perspective view of the embodiment shown in FIG. 1 in an open position;

[0006] FIG. 3 is a side cross-sectional view of an embodiment of the present invention in a closed position;

[0007] FIG. 4 is a side cross-sectional view of an embodiment of the present invention in an open position;

[0008] FIG. 5 is a front cross-sectional view of an embodiment of the present invention in an open position;

[0009] FIG. 6 is a front cross-sectional view of an attachment mechanism between a collapsible support brace and an upper rigid member of the present invention; and

[0010] FIG. 7 is a side cross-sectional view of the latch region marked 7-7 shown in FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] The present invention includes a collapsible storage bin for use in a motor vehicle. As such the present invention has utility as a storage compartment. In addition, the present invention has utility as a storage compartment that can be collapsed and thereby occupy a minimum of space when not in use.

[0012] The collapsible storage bin of the present invention has a generally planar lower rigid member and a generally planar upper rigid member oppositely disposed from the lower rigid member. Attached to and adjoining the lower rigid member to the upper rigid member is a collapsible support brace that is operable to move between an extended upright position and a collapsed down position. When the collapsible support brace is in the extended upright position, a spaced apart relationship is defined between the lower rigid member and the upper rigid member. A flexible sidewall is attached to the upper rigid member and defines a side surface of a collapsible storage bin volume underneath the upper rigid member when the support brace is in the extended upright position. The upper rigid member can be in the form of a tray and can include a recess that is dimensioned to accept or hold items such as beverage containers, coins, writing instruments and the like.

[0013] Referring now to FIGS. 1 and 2, there is shown an embodiment of a collapsible storage bin at reference numeral 10. The collapsible storage bin shown at 10 is in a collapsed down position in FIG. 1 and in an open or an extended upright position in FIG. 2. The collapsible storage bin 10 includes a lower rigid member 100 in the form of a base and an upper rigid member 200 in the form of an upper tray. The tray can optionally include at least one recess 210 which, as illustrated in FIGS. 1 and 2, is dimensioned such that a beverage container can be placed at least partially therein. The upper rigid member 200 also includes an opening 240 and optionally a lid 230. The lid 230 is movably attached to the upper rigid member 200 proximate to the opening 240. The lid 230 can move between a closed position and an open position, wherein the closed position covers the opening 240 and the open position uncovers the opening 240, thereby affording access to a storage bin volume underneath the upper rigid member 200 when the collapsible storage bin 10 is in the extended upright position. In some instances, the upper rigid member 200 fits at least partially within the lower rigid member 100 when the collapsible storage bin 10 is in the collapsed down position. In such instances, the upper rigid member 200 can include at least one latch 220 which affords for the releasable attachment of the upper rigid member 200 to the lower rigid member 100.

[0014] Movably attached to and adjoining the lower rigid member 100 to the upper rigid member 200 is a collapsible support brace 300. In some instances, there can be more than one support brace 300 as shown in FIG. 2. The collapsible support brace 300 can have a first leg 310 and a second leg 320 which afford for an X-frame structure, also known as a scissor-type structure. The ends of the first leg 310 and second leg 320 attach to the lower rigid member 100 and upper rigid member 200 using any mechanism known to those skilled in the art, illustratively including pins, bolts with nuts and the like. In some instances, the first leg 310 and second leg 320

can be attached to the lower rigid member 100 and upper rigid member 200 using a pin 350 extending through an aperture of a leg. For example, the pin 350 can extend through an aperture 312 of the first leg 310 (see FIG. 6) and fit within a slot 110 of the lower rigid member and a slot 260 of the upper rigid member as shown in FIGS. 3 and 4.

[0015] The slot 110 in the lower rigid member and the slot 260 of the upper rigid member afford for the pin 350 to slide in a generally horizontal manner and in combination with a pivot axis 330 allows for the first leg 310 and second leg 320 to open and close in a scissor-like manner. When the first leg 310 and second leg 320 open to form an X shape, the upper rigid member 200 is raised to a distance above the lower rigid member 100. This spaced apart relationship between the lower rigid member 100 and the upper rigid member 200 affords for a storage bin volume underneath the upper rigid member 200.

[0016] Enclosing the storage bin volume that is present between the lower rigid member 100 and the upper rigid member 200 when the collapsible support bracket 300 is in the extended upright position as shown in FIG. 2, is a collapsible or flexible sidewall 400. As illustrated in FIG. 2, the flexible sidewall 400 is in the form of cargo net. In the alternative, the flexible sidewall 400 can be in the form of plastic, cloth and the like. Also illustrated in FIG. 2, the opening 240 affords access through the upper rigid member 200 to the collapsible storage bin volume underneath. The lid 230 can be placed in a closed position such that items within the storage bin volume cannot inadvertently escape, thereby affording for secure containment of such items. It is appreciated that the recess 210 can be used while the collapsible storage bin 10 is in the extended upright position and/or in the collapsed down position.

[0017] Turning now to FIG. 5, a front cross-sectional view of the collapsible storage bin 10 shown in FIG. 2 is provided. As illustrated in this figure, the flexible sidewall 400 is attached to the upper rigid member 200 using snaps 410. In the alternative, the flexible sidewall 400 can be attached to the upper rigid member 200 using any attachment mechanism known to those skilled in the art, illustratively including adhesives, buttons, ultrasonic welding, sewing, hook-and-loop fasteners, screws, nuts and bolts and the like. In addition, the flexible sidewall 400 can optionally be attached to the lower rigid member 100.

[0018] Referring now to FIG. 6, an example of the attachment mechanism between the first leg 310 of the collapsible support brace 300 and the upper rigid member 200 is shown. The upper rigid member 200 can include a bracket 255 and an access aperture 250, with the bracket 255 and a sidewall 205 having slots 260 formed within. The first leg 310 and an optional washer 360 can be located proximate to slots 260 such that the pin 350 can be placed through the aperture 312 of the first leg 310, the aperture 362 of the washer 360 and at least partially through the slots 260. Once the pin 350 has been inserted through the apertures and the slots, the locking pin 370 can be inserted into the locking pin aperture 352 of the locking pin 350 via the access aperture 250. In this manner, the pin 350 with locking pin 370 inserted therethrough remains within the apertures 312, 362 and slots 260. The slots 260 afford for the pin 350 and the first leg 310 attached thereto to slide in a generally horizontal direction. This sliding movement affords for the collapsible support bracket 300 to open and close in a scissor-like manner.

[0019] Turning now to FIG. 7, a side cross-sectional view of the section marked 7-7 in FIG. 2 is shown. This figure illustrates the latch 220 at least partially inserted within a latch groove 111 within the lower rigid member 100 with a latch knob 222 that affords for movement of the latch 220 in a first direction 1. Movement of the latch 220 in the first direction 1 releases the upper rigid member 200 from the lower rigid member 100 and allows for the opening or extension of the collapsible support bracket 300 such that a storage bin volume is created underneath the upper rigid member 200. The extension of the collapsible support bracket 300 to the upright position can be locked in place using any lock mechanism known to those skilled in the art, illustratively including a tightening screw 330 shown in FIG. 2. In the alternative, a locking mechanism can be included within the slots 110 and slots 260 such that the upper rigid member 200 remains in a stable spaced apart relationship from the lower rigid member 100 when the storage bin is in use.

[0020] It is appreciated that the movement of the collapsible support bracket 300 can be afforded manually by an occupant of the motor vehicle or optionally powered using energy supplied by the motor vehicle. The power supplied by the vehicle can be used to energize an electric motor, pneumatic motor and/or hydraulic system attached to the collapsible support brace 300; the electric motor, pneumatic motor and/or hydraulic system affording movement of the support brace 300 and upper rigid member 200 between the closed down position and the extended upright position. It is also appreciated that the lower rigid member 100 can be attached to a floor member of the motor vehicle and that the lower rigid member 100 and upper rigid member 200 can be made from any material known to those skilled in the art, illustratively including metals, alloys, plastics, ceramics and combinations thereof. The flexible sidewall 400 can likewise be made from any material known to those skilled in the art, illustratively including cloth, thread, flexible plastic sheet, flexible cloth sheet, cloth cargo net, plastic cargo net and the like.

[0021] In the manner as described above, a collapsible storage bin for use in a motor vehicle is provided. The collapsible storage bin can include an upper tray that affords for the placement of items such as beverage containers, coins and the like thereon and access to a storage bin volume underneath the upper tray when the collapsible storage bin is in an upright extended position. It is appreciated that other types of collapsible support brackets can be used within the present invention, such as collapsible brackets located at the corners of the storage bin volume. For example, telescopic rods or poles located at the corners can provide a collapsible support structure that affords for a collapsible storage bin volume to be present therebetween.

[0022] The foregoing drawings, discussion and description are illustrative of specific embodiments of the present invention, but they are not meant to be limitations upon the practice thereof. Numerous modifications and variations of the invention will be readily apparent to those of skill in the art in view of the teaching presented herein. It is the following claims, including all equivalents, which define the scope of the invention.

We claim:

1. A collapsible storage bin for use in a motor vehicle comprising:
 - a generally planar lower rigid member and a generally planar upper rigid member oppositely disposed from said lower rigid member;

said upper rigid member having a recess for placement of an item and an opening providing access to a collapsible storage bin volume underneath said upper rigid member; a collapsible support brace pivotally attached to and adjoining said upper rigid member and said lower rigid member;

said support structure operable to move between an extended upright position and a collapsed down position, said extended upright position defining a spaced apart relationship between said lower rigid member and said upper rigid member; and

a flexible sidewall attached to said upper rigid member and defining a side surface of said collapsible storage bin volume underneath said upper rigid member when said support structure is in said extended upright position, said flexible sidewall extending completely around said storage bin volume.

2. The invention of claim 1, further comprising a lid movably attached to said upper rigid member proximate said opening, said lid movable between a closed position where said lid covers said opening and an open position where said lid uncovers said opening.

3. The invention of claim 1, wherein said collapsible support brace is moved between said extended upright position and said collapsed down position manually by an occupant of said motor vehicle.

4. The invention of claim 1, wherein said collapsible support brace is moved between said extended upright position and said collapsed down position by power provided by said motor vehicle.

5. The invention of claim 1, wherein said collapsible support brace is a collapsible X-frame support brace.

6. The invention of claim 5, wherein said lower rigid member and said upper rigid member have a slot where said X-frame support brace attaches to said members, said slot operable to allow said X-frame with said attached upper rigid member to move between said extended upright position and said collapsed down position.

7. The invention of claim 5, wherein said collapsible X-frame support structure has a lock operable to maintain said support structure in said extended upright position.

8. The invention of claim 1, wherein said collapsible support structure is a collapsible corner support structure.

9. The invention of claim 1, wherein said flexible sidewalls are made from cargo net.

10. The invention of claim 1, wherein said flexible sidewalls are made from plastic.

11. The invention of claim 1, wherein said upper rigid member is in the form of a tray.

12. The invention of claim 1, wherein said recess is dimensioned to hold a bottom portion of a beverage container.

13. A collapsible storage bin for use in a motor vehicle comprising:

a lower rigid member attached to an interior floor of said motor vehicle;

an upper rigid member oppositely disposed from said lower rigid member and having a recess for placement of an item and an opening providing access to a collapsible storage bin underneath said upper rigid member;

a lid movably attached to said upper rigid member proximate said opening, said lid movable from a closed position where said lid covers said opening and an open position where said lid uncovers said opening;

a collapsible support brace in the form of a collapsible X-frame pivotally attached to and adjoining said upper rigid member and said lower rigid member, said X-frame operable to move between an extended open position and a collapsed closed position;

a flexible sidewall attached to said upper rigid member defining side surfaces of said collapsible storage bin underneath said upper rigid member when said collapsible X-frame is in said extended upright position, said flexible sidewall extending completely around said storage bin volume.

14. The invention of claim 13, wherein said collapsible X-frame support brace has a lock operable to releasably lock said support structure in said extended upright position.

15. The invention of claim 13, wherein said collapsible X-frame support brace is moved between said extended open position and said collapsed closed position manually by an occupant of said motor vehicle.

16. The invention of claim 13, wherein said collapsible X-frame support brace is moved between said extended open position and said collapsed closed position by power provided by said motor vehicle.

17. The invention of claim 13, wherein said flexible sidewalls are made from cargo net.

18. The invention of claim 13, wherein said flexible sidewalls are made from plastic.

19. The invention of claim 13, wherein said upper rigid member is in the form of a tray.

20. A combination beverage container holder and collapsible storage bin for use in a motor vehicle comprising:

a generally planar lower rigid member attached to an interior floor of said motor vehicle;

a generally planar upper rigid member oppositely disposed from said lower rigid member and having a recess for placement of a beverage container and an opening providing access to a collapsible storage bin underneath said upper rigid member;

a lid movably attached to said upper rigid member proximate said opening, said lid movable from a closed position where said lid covers said opening and an open position where said lid uncovers said opening;

a collapsible support brace in the form of a collapsible X-frame pivotally attached to and adjoining said upper rigid member and said lower rigid member, said X-frame operable to move between an extended upright position and a collapsed closed position;

a flexible sidewall attached to said upper rigid member defining side surfaces of said collapsible storage bin underneath said upper rigid member when said collapsible X-frame is in said extended upright position, said flexible sidewall extending completely around said collapsible storage bin; and

a lock operable to releasably lock said X-frame in said extended upright position.

* * * * *