



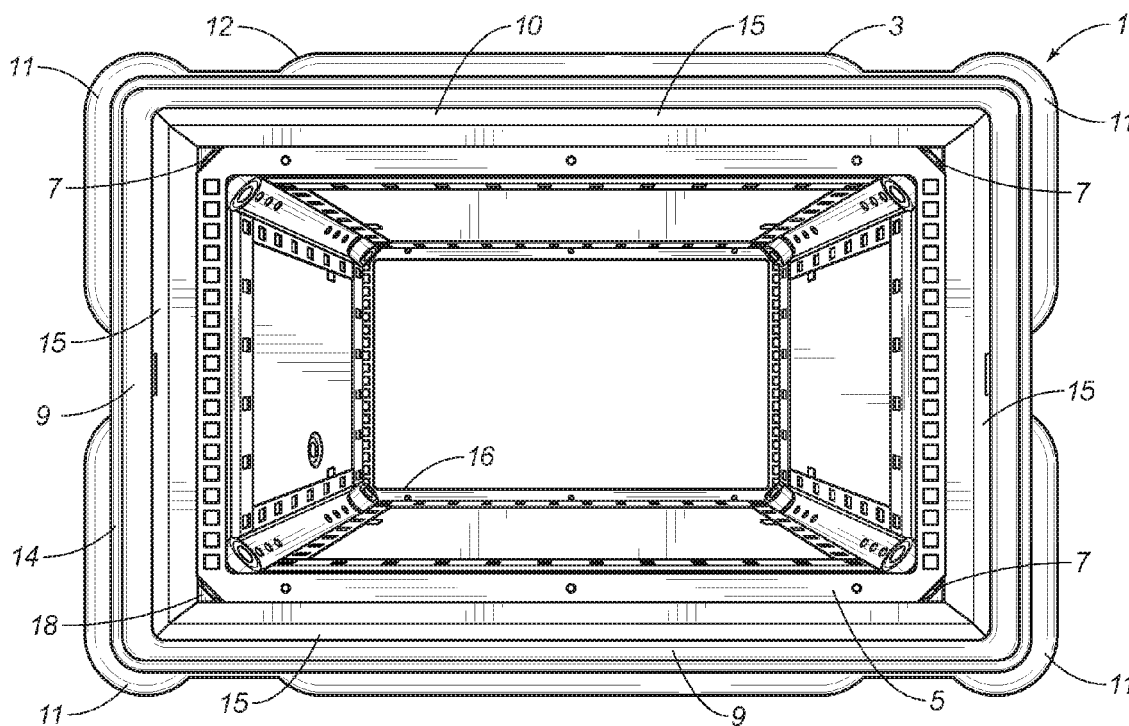
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(19) **United States**(12) **Patent Application Publication**  
**BLACKWAY**(10) **Pub. No.: US 2017/0291749 A1**(43) **Pub. Date: Oct. 12, 2017**(54) **BULLET-RESISTANT TRANSIT CASE**(71) Applicant: **CP CASES Inc.**, Bishopville, MD (US)(72) Inventor: **Bruce BLACKWAY**, Berlin, MD (US)(21) Appl. No.: **15/094,906**(22) Filed: **Apr. 8, 2016**(52) **U.S. Cl.**CPC ..... **B65D 81/02** (2013.01); **F41H 5/013**  
(2013.01); **B65D 25/10** (2013.01); **B65D**  
**43/02** (2013.01)

(57)

**ABSTRACT**

A bullet-resistant transit case includes a casing with inner sidewalls, a rack frame suspended within the casing by a mounting device, and plurality of ballistic panels attached to respective inner sidewalls of the casing by a support device. Adjacent inner sidewalls form inner side edges. The mounting device engages the rack frame from these inner side edges. The supporting device cooperates with the rack frame and mounting device for holding the ballistic panels in place. The supporting device can be brackets with a base portion connecting to the inner side edges and limb attached to adjacent ballistic panels. A end lid and an opposite end lid, with a respective end ballistic panel and opposite end ballistic panel, can be included for a sealed inner volume with bullet-resistant properties within the transit case.

**Publication Classification**(51) **Int. Cl.****B65D 81/02** (2006.01)**B65D 25/10** (2006.01)**B65D 43/02** (2006.01)**F41H 5/013** (2006.01)

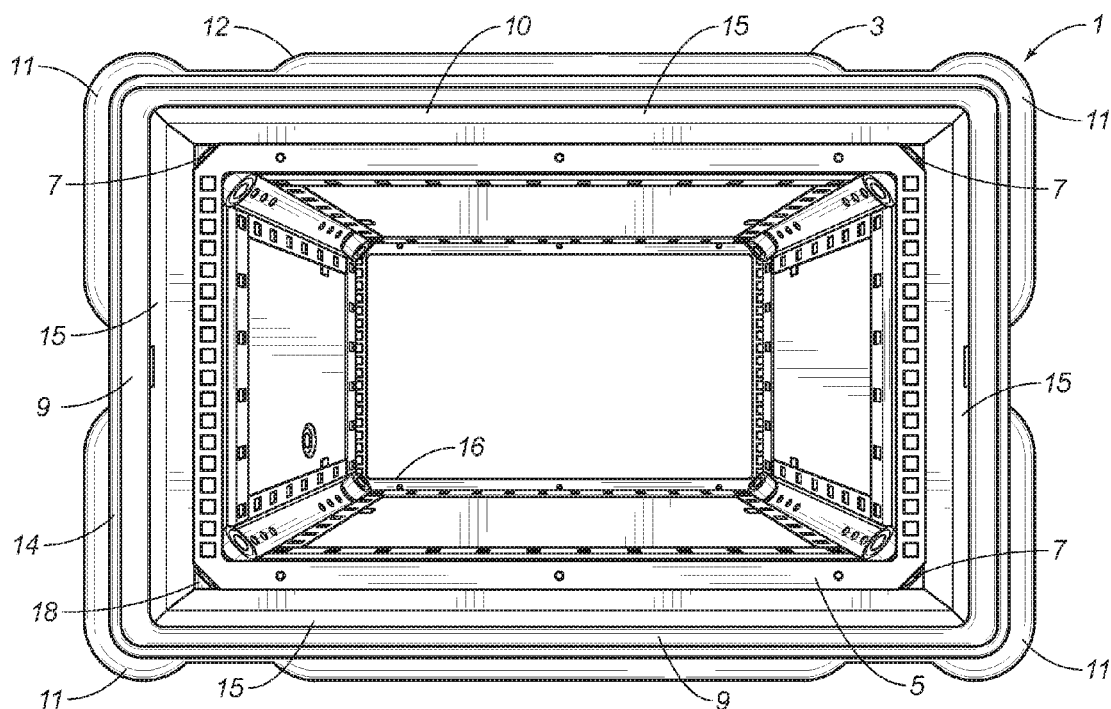


FIG. 1

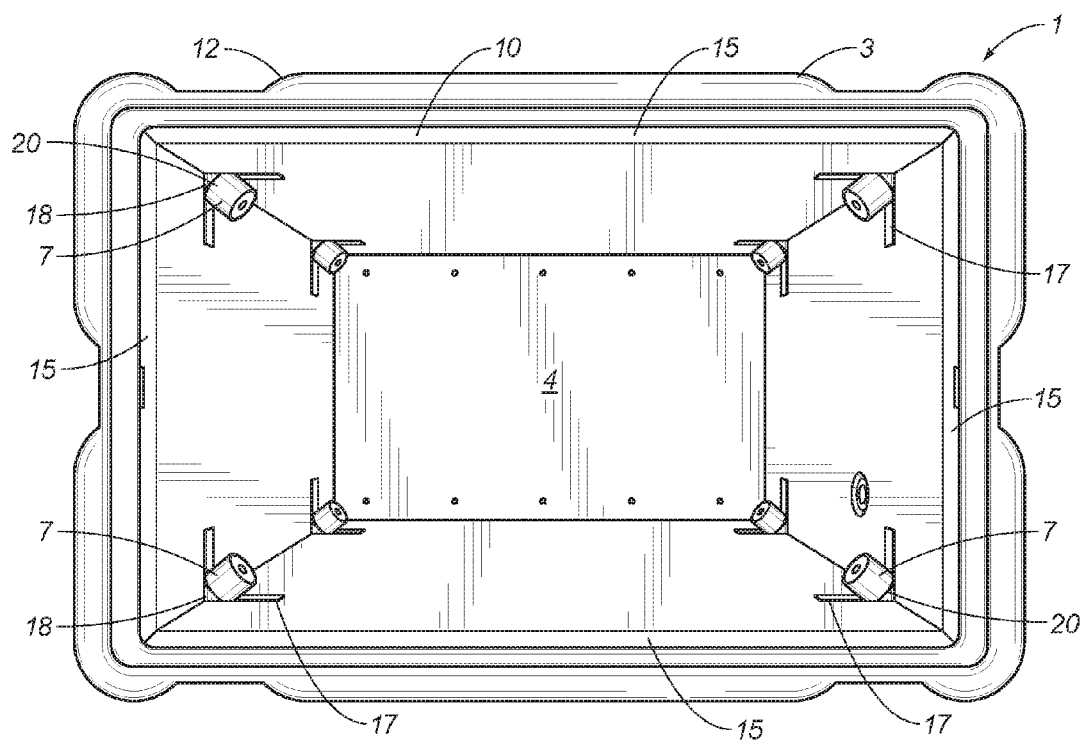


FIG. 2

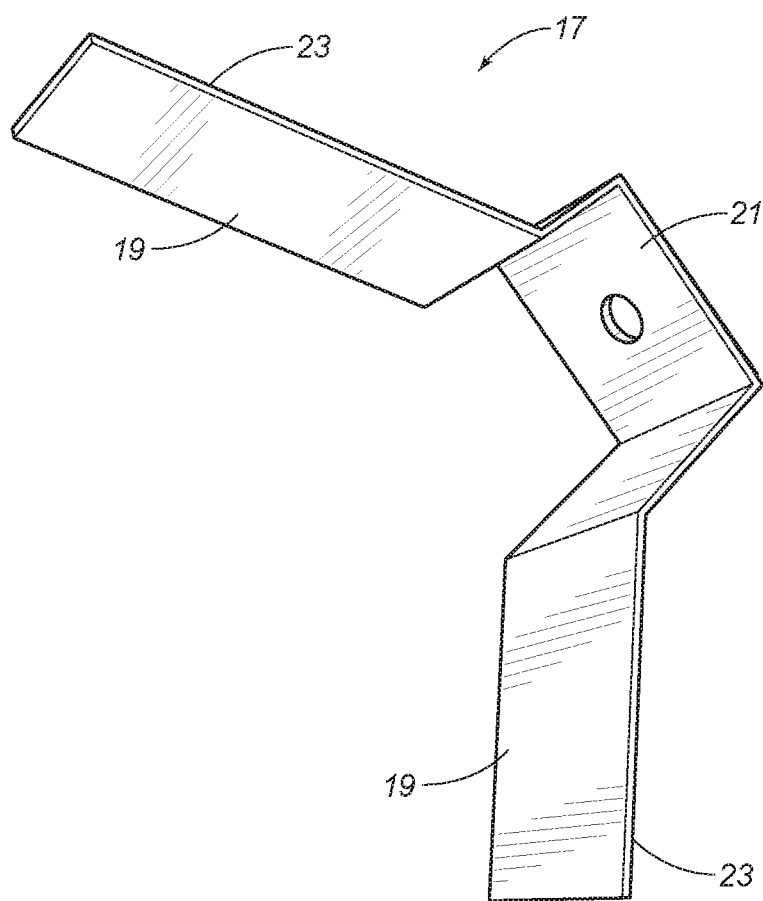


FIG. 3

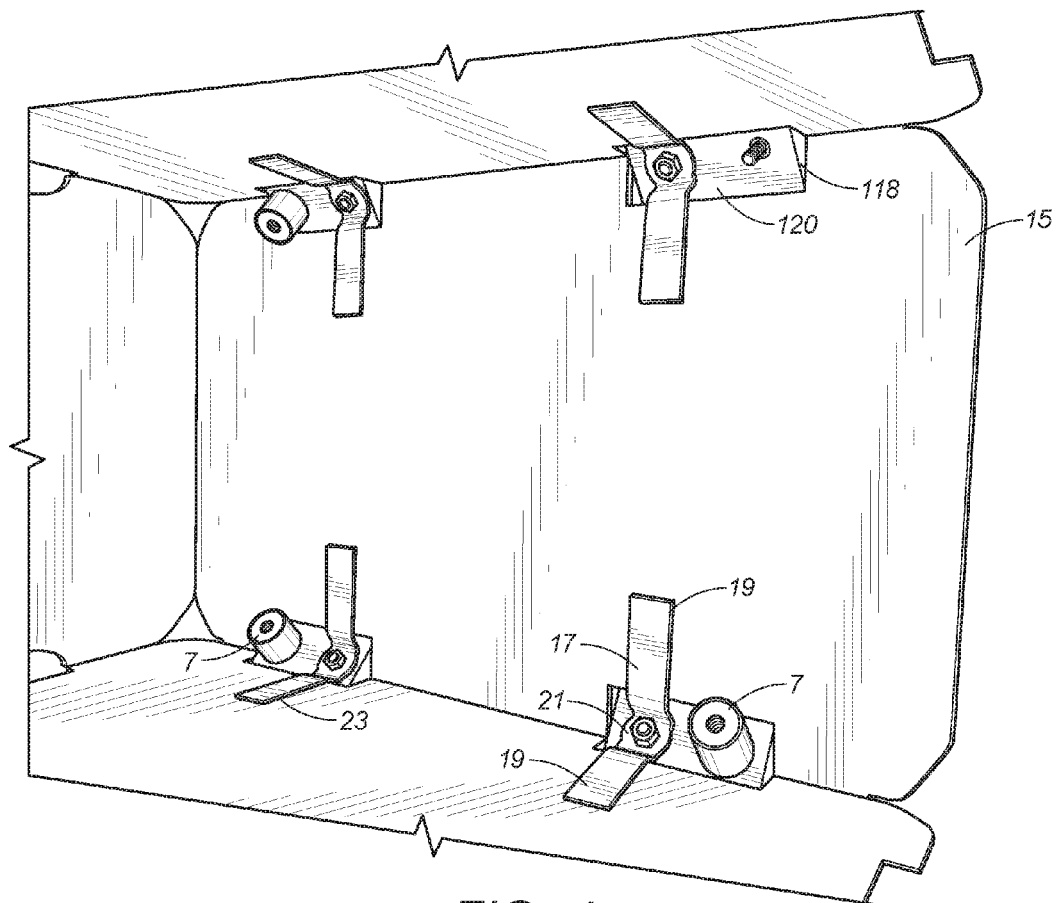


FIG. 4

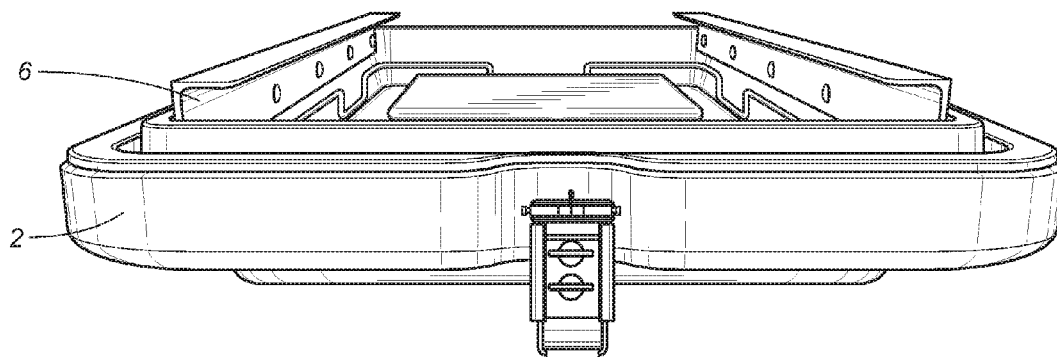


FIG. 5

**BULLET-RESISTANT TRANSIT CASE****CROSS-REFERENCE TO RELATED APPLICATIONS**

**[0001]** See Application Data Sheet.

**STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

**[0002]** Not applicable.

**THE NAMES OF PARTIES TO A JOINT RESEARCH AGREEMENT**

**[0003]** Not applicable.

**INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC OR AS A TEXT FILE VIA THE OFFICE ELECTRONIC FILING SYSTEM (EFS-WEB)**

**[0004]** Not applicable.

**STATEMENT REGARDING PRIOR DISCLOSURES BY THE INVENTOR OR A JOINT INVENTOR**

**[0005]** Not applicable.

**BACKGROUND OF THE INVENTION****1. Field of the Invention**

**[0006]** The present invention relates to containers for transporting sensitive equipment and materials. In particular, the present invention relates to bullet-resistant transit cases for protection against high velocity projectiles and vibration and physical impact damage.

**2. Description of Related Art Including Information Disclosed Under 37 CFR 1.97 and 37 CFR 1.98**

**[0007]** Transportation and storage cases for sensitive equipment or material are well known. Generally, such containers comprise a rigid casing and one or more lids. The casing and lid may be formed from metal, such as aluminum, or from plastic. Suitable padded inserts, straps or other components may be provided for supporting stored equipment within the volume of the case. In the case of a "rack" transit case, there is generally provided a chassis or rack frame within the casing. The sensitive equipment or materials are mounted on the rack frame. Anti-vibration mounts connect the rack frame to the casing so that the sensitive equipment and materials are protected against vibrational and impact damage.

**[0008]** Ballistic shields are also well known. U.S. Pat. No. 4,948,673, issued to Goery on Aug. 14, 1990, discloses a protective panel resistant to bullets. U.S. Pat. No. 6,161,738, issued to Norris on Dec. 19, 2000, describes a bag with a bullet-resistant panel to protect the contents of the bag. U.S. Pat. No. 9,044,074, issued to Almeida De Frietas on Jun. 2, 2015, shows a container system with ballistic panels in different parts of system.

**[0009]** It is an object of the present invention to provide a container system to protect sensitive equipment and materials.

**[0010]** It is another object of the present invention to provide a container system to protect against high velocity projectiles.

**[0011]** It is another object of the present invention to provide a container system to protect against vibration and impact damage.

**[0012]** It is an object of the present invention to provide a container system to protect sensitive equipment and materials.

**[0013]** These and other objectives and advantages of the present invention will become apparent from a reading of the attached specifications and appended claims, cross-section.

**BRIEF SUMMARY OF THE INVENTION**

**[0014]** Embodiments of the present invention include a container system, such as a transit case, with bullet-resistant properties. Sensitive equipment and materials can be protected from vibration and impact damage by the hard cases and stabilizing structures within a transit case. In the present invention, the protection is upgraded to include resistance to high velocity projectiles, such as bullets. The container system includes a casing, a rack frame suspended within the casing, a mounting means for suspending the rack frame in the casing, a plurality of ballistic panels attached to the casing, and a support means for holding the ballistic panels relative to the casing.

**[0015]** The casing has a plurality of inner sidewalls and corresponding outer sidewalls so as to form a end sidewall edge and an opposite end sidewall edge. The casing in this embodiment is open ended. Lids can be added at either end or both ends in other embodiments. Adjacent inner sidewalls form inner side edges. Each inner side edge has a flat portion between the end sidewall edge and the opposite end sidewall edge. The flat portion can form a mounting surface set at a 45 degree angle relative to adjacent inner sidewalls. The mounting means can engage the mounting surface of the flat portion of each inner side edge. Mounting means hold the rack frame suspended within the casing. The mounting means is an anti-vibration device to protect the contents stored on the rack frame from vibration and impact damage.

**[0016]** In some embodiments, the plurality of ballistic panels corresponds to the number of inner sidewalls. Each ballistic panel is substantially planar and adjacent to a respective inner side wall so that there is virtually no gap between the ballistic panel and the sidewall. These adjacent ballistic panels form an inner volume. The support means set the position of the ballistic panels relative to the casing and the rack frame. In some embodiments, the support means attaches ballistic panels to the rack frame, instead of the casing.

**[0017]** An embodiment of the support means includes a plurality of brackets. Each bracket has a base portion and a plurality of limbs on opposing sides of the base portion. The base portion is removably fixed in position relative to the casing, and the limbs attach to adjacent ballistic panels. The base portion can engage the mounting means or the flat portion of a respective inner side edge. A fixing means for each limb attaches to the support surface of the respective ballistic panel. The ballistic panels are friction fit around the mounting means and fixedly attached to respective brackets.

**[0018]** Further embodiments include a container system with an end lid, an opposite end lid or both. There can be a respective end ballistic panel and a respective opposite end

ballistic panel for the corresponding lid. The ballistic panels in the lids can be aligned with the ballistic panels in the casing to seal the inner volume for full protection of the contents within the rack frame.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

**[0019]** FIG. 1 is a front elevation view of the container system, showing the rack frame suspended in the casing.

**[0020]** FIG. 2 is another front elevation view, showing the casing without the rack frame and a bottom lid with bottom ballistic panel.

**[0021]** FIG. 3 shows a perspective view of a bracket as the supporting means for a ballistic panel on the casing.

**[0022]** FIG. 4 shows a perspective view of an alternate embodiment of the inner side edges of the casing.

**[0023]** FIG. 5 is an end perspective view of another alternate embodiment of the present invention, showing a bottom lid cooperative with the casing.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0024]** Referring to FIGS. 1-3, the container system 1 can be a transit case or other receptacle for storage of objects. The container system 1 of the present invention protects sensitive equipment and materials from vibration and impact damage, in addition to high velocity projectiles. The container system 1 remains lightweight for portability. Electronic equipment, such as a server, or scientific equipment can be transported safely. Contents requiring extra levels of protection can be safely and conveniently stored and transported in the container system of the present invention.

**[0025]** FIGS. 1-2 show the container system 1 comprising a casing 3, a rack frame 5 suspended within the casing 3, a mounting means 7 for suspending the rack frame 5 in the casing 3, a plurality of ballistic panels 15 attached to the casing 3, and a support means 17 for holding the ballistic panels 15 relative to the casing 3. The rack frame 5 is resiliently positioned within the casing 3, such that the rack frame 5 holds contents of the container system 1. In some embodiments, the rack frame 5 can be a 19 inch metal framework. Contents can be attached to the metal framework for stable positioning within the container system 1.

**[0026]** The casing 3 is shown in FIG. 1. There are a plurality of inner sidewalls 10 and corresponding outer sidewalls 12 so as to form an end sidewall edge 14 and an opposite end sidewall edge 16. The casing 3 in FIG. 1 is open ended, and the end sidewall edge 14 and an opposite end sidewall edge 16 are visible. Lids can be added at either end or both ends in other embodiments, as shown in FIG. 2. Adjacent inner sidewalls 10 form inner side edges 11. Each inner side edge 11 has a flat portion 18 between the end sidewall edge 14 and the opposite end sidewall edge 16. The flat portion 18 can form a mounting surface 20 set at a 45 degree angle relative to adjacent inner sidewalls 10. FIG. 4 shows an alternative embodiment of the flat portion 118. The flat portion 118 shows a mounting surface 120 with a mounting means 7 and a support means 17. The flat portion 118 does not extend the entire length of the inner side edge 11. The flat portion 118 is positioned according to the rack frame 5 and the contact points of the rack frame 5 relative to the inner side edge 11.

**[0027]** The mounting means 7 engage can engage the mounting surface 20 of the flat portion 18 of each inner side edge 11. Mounting means 7 hold the rack frame 5 suspended within the casing 3. The mounting means 7 is an anti-vibration device to protect the contents stored on the rack frame 5 from vibration and impact damage. The anti-vibration device is usually comprised of an elastomeric material. Mounting means 7 can be elastomeric bushings, wire rope mounts, adhesives, threaded members, bolts or other mechanical components. FIG. 2 shows the mounting means as elastomeric bushings to absorb impact and vibration of the container system 1 before damaging contents on the rack frame 5 of FIG. 1. The elastomeric bushings are present in FIG. 1 behind the rack frame 5. FIG. 2 shows that the mounting means 7 as an elastomeric bushing fixedly attaches to a respective flat portion 18 between the end sidewall edge 14 and the opposite end sidewall edge 16. FIG. 4 shows another embodiment with the mounting means 7 fixedly attached to a flat portion 118 on the mounting surface 120. There are two flat portions 118 adjusted according to the rack frame 5.

**[0028]** The plurality of ballistic panels 15 corresponds to the inner sidewalls 10 in FIGS. 1, 2 and 4. Each ballistic panel 15 is substantially planar and adjacent to a respective inner sidewall 10. Adjacent ballistic panels 15 form an inner volume. The rack frame 5 fits inside the inner volume. Contents stored on the rack frame 5 are protected from bullets within the inner volume. In some embodiments, the inner volume can be defined by a complete enclosure. FIGS. 2 and 5 shows an opposite end lid 2 in removable sealing engagement to the opposite end sidewall edge 16, and there is an opposite end ballistic panel 4 attached to the opposite end lid 2 and forming an opposite end of the inner volume. FIG. 5 further shows an L-shaped bracket 6 connecting the opposite end ballistic panel 4 to the bottom lid 2. The opposite end ballistic panel 4 can be in sliding engagement to the bracket 6 so as to be aligned with the ballistic panels 15. The sealed end enclosure of the inner volume is shown in FIG. 2.

**[0029]** In further embodiments, there can also be an end lid in removable sealing engagement to the end sidewall edge 14. Similar to the opposite end lid and opposite end ballistic panel, there can be an end ballistic panel attached to the end lid. An end of the inner volume is formed for a complete enclosure to protect contents from bullets in all directions. The same L-shaped bracket can connect the end ballistic panel to the end lid in sliding engagement and in alignment with the ballistic panels 15. The opposite end lid 2 and the end lid can be hinged to the casing 3.

**[0030]** FIGS. 2, 3, and 4 show the support means 17 setting the position of the ballistic panels 15 relative to the casing 3 and the rack frame 5. A support means 17 can be comprised of a support frame, brackets, straps, and a combination of brackets and straps. In the embodiment of FIGS. 2-4, the support means 17 comprises a plurality of brackets. These brackets can be comprised of metal. Each bracket as the support means 17 has a base portion 21 and a plurality of limbs 19 on opposing sides of the base portion 21. The base portion 21 is removably fixed in position relative to the casing 3, and the limbs 19 attach to adjacent ballistic panels 15. Each limb 19 can be positioned at a 45 degree angle from base portion 21. The angle is compatible with the mounting surface 20 of the inner side edge 11 of the casing 3. Other angles may be used for other shapes of the casing 3. FIGS.

2-4 show 45 degree angles for the orthogonal sidewalls 11 of the embodiment of the container system 1.

[0031] FIG. 2 shows the base portion 21 engaging the mounting means 7 and the flat portion 18 of a respective inner side edge 11. The elastomeric bushing extends through the bracket to hold the mounting means 7 and the support means 17 together against the inner side edge 11. At least two brackets engage the same inner side edge 11. With four inner side edges 11, there would be eight total brackets as the support means 17.

[0032] FIG. 4 shows a different embodiment with the base portion 21 engaging the flat portion 118 of a respective inner side edge 11. The mounting means 7 is attached to the same mounting surface 120 on the same flat portion 118. The mounting means 7 is positioned outside of the brackets of the support means 17 so that the rack frame 5 is anchored outside of the brackets. The protection from vibration and impact damage and the protection from high velocity projectiles are linked according to FIGS. 2 and 4. Impact from a bullet will still affect the protection from vibration and impact damage. However, sustaining bullet damage will not disable the protection from vibration and impact damage. The container system 10 has additional protections with some level of independence.

[0033] Embodiments further include a fixing means for each limb 19 with a respective support surface 23 attached to the respective ballistic panel 15. Fixing means can include nails, screws, rivets, bolts, adhesive or other mechanical components to attach the limb 19 to the ballistic panel 15.

[0034] The ballistic panels 15 are friction fit around the mounting means 7 and fixedly attached to respective brackets of the support means 17. FIGS. 1-4 show the ballistic panels 15 with indentation and holes to accommodate the flat portions 18, 118 and mounting means 7. The ballistic panels 15 of these embodiments attach to the inner side edges 11 of the casing 3. In other embodiments, the support means can attach the ballistic panels to the rack frame, instead of the casing.

[0035] The present invention provides a container system to protect sensitive equipment and materials against different threats. The transit cases of the invention are bullet-resistant to protect against high velocity projectiles, while maintaining a structure to support a rack frame and mounting means to protect against vibration and impact damage. The container system adds a level of protection beyond traditional transit cases without interfering with original functionality as a transit case. A container system can more fully protect sensitive equipment and materials within an inner volume formed by panels within a casing.

[0036] The foregoing disclosure and description of the invention is illustrative and explanatory thereof. Various changes in the details of the described method can be made without departing from the true spirit of the invention.

I claim:

1. A container system, comprising:

- a casing having a plurality of inner sidewalls and corresponding outer sidewalls so as to form an end sidewall edge and an opposite end sidewall edge, wherein adjacent inner sidewalls form inner side edges;
- a rack frame suspended within said casing;
- a mounting means for said rack frame relative to said casing;
- a plurality of ballistic panels corresponding to said inner side walls, each ballistic panel being substantially

planar and adjacent to a respective inner side wall, wherein adjacent ballistic panels form an inner volume of said casing; and

a support means for said ballistic panels relative to said casing and said rack frame.

2. The container system, according to claim 1, wherein each inner side edge has a flat portion between said end sidewall edge and said opposite end sidewall edge.

3. The container system, according to claim 1, wherein said rack frame is resiliently positioned within said casing.

4. The container system, according to claim 1, wherein said mounting means are comprised of elastomeric bushings.

5. The container system, according to claim 1, wherein said mounting means are comprised of an anti-vibration brace, said anti-vibration brace being elastomeric.

6. The container system, according to claim 1, wherein each inner side edge has a flat portion with a mounting surface, said flat portion being positioned between said end sidewall edge and said opposite end sidewall edge, said mounting means fixedly attached to a respective flat portion.

7. The container system, according to claim 1, wherein said support means is comprised of a plurality of brackets.

8. The container system, according to claim 7, each bracket having a base portion and a plurality of limbs on opposing sides of said base portion, said base portion being removably attached to said casing, each limb having a support surface.

9. The container system, according to claim 8, wherein said mounting means engages said casing through said base portion, said mounting means extending through a hole in said base portion.

10. The container system, according to claim 8, wherein said base portion engaging a respective mounting surface of a corresponding flat portion of said inner side edge of said casing.

11. The container system, according to claim 10, wherein said mounting means engages said respective mounting surface of said corresponding flat portion of said inner side edge of said casing adjacent a respective base portion, said respective base portion being interior of said mounting means.

12. The container system, according to claim 7, wherein at least two brackets engage each inner side edge.

13. The container system, according to claim 7, wherein each limb is positioned at a 45 degree angle from base portion, each limb engaging a support surface of a respective ballistic panel.

14. The container system, according to claim 13, further comprising a fixing means for each support surface of a respective limb and a corresponding ballistic panel.

15. The container system, according to claim 1, wherein said ballistic panels are friction fit around said mounting means and fixedly attached to a respective support means.

16. The container system, according to claim 1, wherein said support means fixedly attaches said ballistic panels to said rack frame.

17. The container system, according to claim 1, further comprising:  
an end lid in removable sealing engagement to said end sidewall edge.

18. The container system, according to claim 17, further comprising:

an end ballistic panel being attached to said end lid and forming an end of said inner volume, wherein an L-shaped bracket connects said end ballistic panel to said end lid, said end ballistic panel being aligned with said ballistic panels so as to define said inner volume.

**19.** The container system, according to claim **1**, further comprising:

an opposite end lid in removable sealing engagement to said opposite end sidewall edge.

**20.** The container system, according to claim **19**, further comprising:

an opposite end ballistic panel being attached to said opposite end lid and forming an opposite end of said inner volume, wherein an L-shaped bracket connects said opposite end ballistic panel to said opposite end lid, said opposite end ballistic panel being aligned with said ballistic panels so as to define said inner volume.

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