

A DEMOUNTABLE ASSEMBLY

TECHNICAL FIELD

This invention relates generally to a demountable assembly for forming a display case.

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Background

Typical display cases, for example the display cases used in museums and exhibitions for displaying articles and artefacts, have complex configurations and are usually formed from heavy gauge materials. Due to the myriad of processes required for forming these display cases and to ensure that the components are accurately aligned and tested for structural and functional compliance, the display cases are usually constructed off-site, for example in a workshop away from the venue of use and pre-assembled prior to being delivered to the venue of use. This is an efficacious approach in situations where on-site work has to be minimized or eliminated altogether. However, transporting the completed or partially completed display case to the venue of use is usually a difficult task. In situations where the display cases can be constructed, partially or fully, on-site, there is always a problem of the display case not being able to be easily disassembled for disposal or be conveniently modified for other exhibitions or functions at the same location. Further, deconstruction of typical display cases usually means that destruction of the display cases at least in part which does not contribute to the display case being reusable. Therefore, there exists a need for a display case for addressing the foregoing issues.

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Summary

In accordance with a first aspect of the invention, there is disclosed a demountable assembly comprising a first guide structure defining a first passageway extending along a first axis and an opening to the first passageway. The first guide structure further defines a first aperture extending to the first passageway and is positioned proximal the opening to the first passageway. The demountable assembly further comprises a bracket and a second guide structure coupled to the bracket. The bracket has a first free end and an abutment. The first free end is receivable into the first passageway through the opening thereof. The first

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passageway is shaped and dimensioned for limiting relative travel of the bracket to along the first axis. The bracket has a first beveled notch positioned for aligning with the first aperture when a portion of the bracket is received into the first passageway. When a first plunger is disposed into the aperture towards the passageway, the first plunger engages with the first beveled notch to further draw and bias the bracket into and the abutment towards the opening of the first passageway to thereby draw the second guide structure towards the first guide structure.

In accordance with a second aspect of the invention, there is disclosed a demountable assembly comprising a guide structure defining a passageway extending along a first axis and at least one opening to the passageway. The guide structure further defines an aperture extending to the passageway and is positioned proximal the at least one opening. The demountable assembly further comprises a bracket having a free end and an abutment for being received into the passageway through the opening with the passageway being shaped and dimensioned for limiting travel of the bracket to along the first axis, the bracket having a beveled notch positioned for aligning with the aperture when the bracket is received into the second passageway. Wherein when a plunger is disposed into the second aperture towards the passageway, the plunger engages with the beveled notch to further draw and bias the bracket into the passageway and the abutment towards the opening of the passageway.

Brief Description of the Drawings

FIG. 1 shows a partial front sectional view of a demountable assembly incorporated with a bottom frame assembly of a display case according to an aspect of the invention;

FIG. 2 shows a partial perspective of from the inside of the display case of FIG. 1 with the demountable assembly comprising a first guide structure supporting a first planar structure, a bracket and a second guide structure supporting a second planar structure for forming a portion of the bottom frame assembly thereof;

FIG. 3 shows a partial top view of the bracket of FIG. 2;

FIG. 4 shows a partial front view of the bracket of FIG. 3;

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FIG. 5 shows a partial side view of the bracket of FIG. 3;

FIG. 6 shows a partial sectional top view of the first planar structure being sealed with the second planar structure of FIG. 2 by a sealing strip;

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FIG. 7 shows a partial front sectional view of one of the first guide structure and the second guide structure of FIG. 2 with the general configuration between one of the first planar structure and the second planar structure, one of a first finger and a second finger of the bracket and nuts being received within a track structure;

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FIG. 8 shows a partial front view of the display case of FIG. 1 in a single-bay configuration with a plurality of planar structures extending between a top frame structure and the bottom frame structure;

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FIG. 9 shows a partial front view of the display case of FIG. 1 in a triple-bay configuration with a plurality of planar structures extending between a top frame structure and the bottom frame structure;

FIG. 10 shows a partial top view of a double-bay configuration of the bottom frame structure of FIG. 1 being formed from a plurality of concatenated frame segments and a plurality of base plates; and

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FIG. 11 shows a partial top view of a triple-bay configuration of the bottom frame structure of FIG. 1 being formed from the plurality of concatenated frame segments and a plurality of the base plate.

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Detailed Description

An exemplary embodiment of the present invention, a demountable assembly 20, is described hereinafter with reference to FIG. 1 to FIG. 11. The demountable assembly 20 comprises a first guide structure 22, a bracket 24 and a second guide structure 26. The first guide structure 22 defines a first passageway 28 extending along a first axis 30 and an opening to the first passageway 28. The first guide structure 22 further defines a first aperture 34 extending to the first passageway 28 and is positioned proximal the opening to the first passageway 28.

The bracket 24 has a first free end 36 and an abutment 38. The first free end 36 for being received into the first passageway 28 through the opening thereof. The first passageway 28 is shaped and dimensioned for limiting relative travel of the bracket 24 to along the first axis 30. The bracket 24 has a first beveled notch 40 positioned for aligning with the first aperture 34 when a portion of the bracket 24 is received into the first passageway 28.

The second guide structure 26 is coupled to the bracket 24 such that when a first plunger 42 is disposed into the first aperture 34 towards the first passageway 28, the first plunger 42 engages with the first beveled notch 40 to further draw and bias the bracket 24 into and the abutment 38 towards the opening of the first passageway 28 to thereby draw the second guide structure 26 towards the first guide structure 22.

The second guide structure 26 defines a second passageway 44 extending along a second axis 46 and an opening to the second passageway 44. The second guide structure 26 further defines a second aperture 50 extending to the second passageway 44 and being positioned proximal the opening to the second passageway 44. The bracket 24 further has a second free end 52 for being received into the second passageway 44 through the opening thereof. The second passageway 44 is shaped and dimensioned for limiting relative travel of the bracket 24 to along the second axis 46 relative thereto. The bracket 24 has a second beveled

notch 54 positioned for aligning with the second aperture 50 when a portion of the bracket 24 is received into the second passageway 44.

When a second plunger 56 is disposed into the second aperture 50 towards the second passageway 44, the second plunger 56 engages with the second beveled notch 54 to further
5 draw and bias the bracket 24 into and the abutment 38 towards the opening of the second passageway 44 to thereby draw the first guide structure 22 towards the second guide structure 26.

Preferably, each of the first guide structure 22 and the second guide structure 26 is formed
10 from a profile structure, for example an aluminum profile, with each of the first passageway 28 and the second passageway 44 being channels formed in the profile structure. Further preferably, each of the first plunger 42 and the second plunger 56 is at least one of a grub screw and a threaded pin.

15 The bracket 24 preferably comprises a first finger 58 and a second finger 60. The first finger 58 extends from the abutment 38 to terminate at the first free end 36 with the first beveled notch 40 being formed therealong. The first finger 58 is shaped and dimensioned for being received through the first passageway 28. The second finger 60 extends from the
20 abutment 38 to terminate at the second free end 52 with the second beveled notch 54 being formed therealong. The second finger 60 is shaped and dimensioned for being received through the second passageway 44. The abutment 38 formed the junction between and adjoining the first finger 58 and the second finger 60. Each of the first beveled notch 40 and the second beveled notch 54 defines a beveled face that faces towards the abutment 38.

25 Each of the first finger 58 and the second finger 60 may define more than one of the respective first beveled notch 40 and the second beveled notch 54. Based on the required configuration between the first guide structure 22 and the second guide structure 26, the first finger 58 may be substantially one of perpendicular and parallel the second finger 60.

It is preferred that the bracket 24 has a two-finger configuration, specifically the first finger 58 and the second finger 60. However, it is not precluded that the bracket 24 may comprise more than two fingers. In a three finger configuration, the bracket 24 further comprises a
5 third finger extending perpendicular the first finger 58. The third finger is couplable to a third guide structure for drawing the third guide structure towards the first guide structure 22 and the second guide structure 26.

The first guide structure 22 defines a first trough 66 being shaped and dimensioned for
10 receiving at least a portion of an edge of a first planar structure 68 and for aligning the first planar structure 68 substantially parallel the first axis 30. The second guide structure 26 defines a second trough 70 being shaped and dimensioned for receiving at least a portion of an edge of a second planar structure 72 and for aligning the second planar structure 72 substantially parallel the second axis 46. When in use at least one of the first planar
15 structure 68 and the second planar structure 72 is formed from at least one glass panel. Alternatively or additionally, at least one of the first planar structure 68 and the second planar structure 72 forms a door frame whereto one or more doors are couplable.

Preferably, the first planar structure 68 comprises a sealing strip 74 extending along an edge
20 thereof and substantially perpendicular the first axis 30 when the first planar structure 68 is received in the first trough 66. The first planar structure 68 and the second planar structure 70 are further inter-aligned for positioning and compressing the sealing strip 74 therebetween when the first guide structure 22 is drawn towards the second guide structure 26 to thereby displace the first planar structure 68 towards the second planar structure 72.
25 The sealing strip is made from one of silicone, plastic, polymeric and elastomeric material that is compressible when sandwiched between the first planar structure 68 and the second planar structure 72 to form a seal, for example a fluid seal, therebetween.

Each of the first guide structure 22 and the second guide structure 26 comprises a track structure 76 for receiving one or more nuts 78, each defining a threaded hole therethrough for being alignable with one of the first aperture 34 and the second aperture 50 when positioned in the track structure 76. Each of the first plunger 42 and the second plunger 56 being engageable and operable with a corresponding one of the nuts 78 for setting the apart the respective one of the nuts 78 and one of the first beveled notch 40 and the second beveled notch 54 to thereby engage the first plunger 42 with the first beveled notch 40 and the second plunger 56 with the second beveled notch 54.

The track structure 76 of each of the first guide structure 22 and the second guide structure 26 defines a slit 82 along the length thereof for exposing the threaded hole of the nut 78 when received therein. The demountable assembly 20 further comprises an article defining a threaded shank, for example an elongated shank with a threaded free end, for coupling to the threaded hole of one of the nuts 78 accessed through the slit 82 of each of the first guide structure 22 and the second guide structure 26. The article can be, for example signage holder or the like item or article that can be supported from or suspended through the slit 82 from one of the nuts 78 received in the track structure 76 of the respective one of the first guide structure 22 and the second guide structure 26.

DISPLAY CASE

The demountable assembly 20 further comprises a top frame assembly 102, a bottom frame assembly 104 and a plurality of planar structures 106 extending between and spatially inter-displacing the top frame assembly 102 and the bottom frame assembly 104. Each of the top frame assembly 102 and the bottom frame assembly 104 comprises a plurality of concatenated frame segments 108 with at least one adjacent pair of the plurality of concatenated frame segments 108 being formed from the first guide structure 22 and the second guide structure 26 being inter-coupled by the bracket 24. The first planar structure 68 and the second planar structure 72 are constituents of the plurality of planar structure 106.

The demountable assembly 20 further comprises a door being hinged to one of the frame segments 108 of the top frame assembly 102 and one of the frame segments 108 of the bottom frame assembly 104 for displacing between an open position and a closed position. The demountable assembly 20 further comprises a lock system being mounted with the frame segment 108 of one of the top frame assembly 102 and the bottom frame assembly 104 for engagement with the door when in the closed position for impeding displacement thereof away from the closed position.

The demountable assembly 20 further comprises a base plate 114 where to each of the frame segment 108 of the bottom frame assembly 104 is further coupled for imparting rigidity thereto, and a plurality of leg structures 116 coupled to the base plate 114 and extending away from the top frame assembly 102. The top frame assembly 102, the bottom frame assembly 104 and the plurality of planar structures 106 forms a display case 118. Each of the plurality of leg structures 116 is independently height-adjustable for levelling with a surface for supporting the display case 118 from the surface.

The demountable assembly 20 also comprises a lid assembly for coupling to the top frame assembly 102. The lid assembly is shaped and dimensioned for the frame segments 108 of the top frame assembly 102 to extend adjacently along the periphery thereof. The lid assembly comprises a glass panel and a plurality of skirting structures extending along and being coupled to the periphery of the of the glass panel. Each of the plurality of skirting structures defines a flange for suspending the lid assembly from the top frame assembly 102 prior to coupling of the lid assembly to the top frame assembly 102 through one of a combination of adhesive and mechanical fastening means.

Aspects of particular embodiments of the present disclosure address at least one aspect, problem, limitation, and/or disadvantage associated with lock assemblies and key apparatus for use therewith. While features, aspects, and/or advantages associated with certain embodiments have been described in the disclosure, other embodiments may also exhibit such features, aspects, and/or advantages, and not all embodiments need necessarily exhibit

such features, aspects, and/or advantages to fall within the scope of the disclosure. It will be appreciated by a visitor of ordinary skill in the art that several of the above-disclosed structures, components, or alternatives thereof, can be desirably combined into alternative structures, components, and/or applications. In addition, various modifications, alterations, and/or improvements may be made to various embodiments that are disclosed by a visitor of ordinary skill in the art within the scope of the present disclosure, which is limited only by the following claims.

Claims

1. A demountable assembly comprising:

a first guide structure defining a first passageway extending along a first axis and an opening to the first passageway, the first guide structure further defining a first aperture extending to the first passageway and being positioned proximal the opening to the first passageway;

a bracket having a first free end and an abutment, the first free end for being received into the first passageway through the opening thereof, the first passageway being shaped and dimensioned for limiting relative travel of the bracket to along the first axis, the bracket having a first beveled notch positioned for aligning with the first aperture when a portion of the bracket is received into the first passageway; and

a second guide structure coupled to the bracket,

wherein when a first plunger is disposed into the first aperture towards the first passageway, the first plunger engages with the first beveled notch to further draw and bias the bracket into and the abutment towards the opening of the first passageway to thereby draw the second guide structure towards the first guide structure.

2. The demountable assembly as in claim 1, the second guide structure defining a second passageway extending along a second axis and an opening to the second passageway, the second guide structure further defining a second aperture extending to the second passageway and being positioned proximal the opening to the second passageway, the bracket further having a second free end for being received into the second passageway through the opening thereof, the second passageway being shaped and dimensioned for limiting relative travel of the bracket to along the second axis, the bracket having a second beveled notch positioned for aligning with the second aperture when a portion of the bracket is received into the second passageway,

wherein when a second plunger is disposed into the second aperture towards the second passageway, the second plunger engages with the second beveled notch to further draw and bias the bracket into and the abutment towards the opening of the second passageway to thereby draw the first guide structure towards the second guide structure.

3. The demountable assembly as in claim 2, each of the first plunger and the second plunger being at least one of a grub screw and a threaded pin.

4. The demountable assembly as in claim 2, the bracket comprising:
a first finger extending from the abutment to terminate at the first free end with the first beveled notch being formed therealong, the first finger being shaped and dimensioned for being received through the first passageway; and

a second finger extending from the abutment to terminate at the second free end with the second beveled notch being formed therealong, the second finger being shaped and dimensioned for being received through the second passageway.

5. The demountable assembly as in claim 4, the first finger being substantially one of perpendicular and parallel the second finger.

6. The demountable assembly as in claim 4, the bracket further comprising a third finger extending perpendicular the first finger, the third finger being couplable to a third guide structure for drawing the third guide structure towards the first guide structure and the second guide structure.

7. The demountable assembly as in claim 2, the first guide structure defining a first trough being shaped and dimensioned for receiving at least a portion of an edge of a first planar structure and for aligning the first planar structure substantially parallel the first axis, and the second guide structure defining a second trough being shaped and dimensioned for receiving at least a portion of an edge of a second

planar structure and for aligning the second planar structure substantially parallel the second axis.

8. The demountable assembly as in claim 7, at least one of the first planar structure and the second planar structure being formed from at least one glass panel.
9. The demountable assembly as in claim 7. at least one of the first planar structure and the second planar structure forming a door frame.
10. The demountable assembly as in claim 7, the first planar structure comprising a sealing strip extending along an edge thereof and substantially perpendicular the first axis when the first planar structure is received in the first trough, the first planar structure and the second planar structure are further inter-aligned for positioning and compressing the sealing strip therebetween when the first guide structure is drawn towards the second guide structure to thereby displace the first planar structure towards the second planar structure.
11. The demountable assembly as in claim 2, each of the first guide structure and the second guide structure comprising a track structure for receiving a nut defining a threaded hole for being alignable with one of the first aperture and the second aperture when positioned in the track structure, each of the first plunger and the second plunger being engageable and operable with a corresponding one of the nuts for setting the apart the respective one of the nuts and one of the first beveled notch and the second beveled notch to thereby engage the first plunger with the first beveled notch and the second plunger with the second beveled notch.
12. The demountable assembly as in claim 11, the track structure of each of the first guide structure and the second guide structure defining a slit along the length thereof for exposing the threaded hole of the nut received therein.

13. The demountable assembly as in claim 12, further comprising an article defining a threaded shank for coupling to the threaded hole of the nut accessed through the slit of each of the first guide structure and the second guide structure.
- 5 14. The demountable assembly as in claim 2, further comprising:
a top frame assembly;
a bottom frame assembly; and
a plurality of planar structures extending between and spatially inter-
displacing the top frame assembly and the bottom frame assembly, each of the top
10 frame assembly and the bottom frame assembly comprising a plurality of
concatenated frame segments with at least one adjacent pair of the plurality of
concatenated frame segments formed from the first guide structure and the second
guide structure being inter-coupled by the bracket.
- 15 15. The demountable assembly as in claim 14, further comprising a door being hinged
to one of the frame segments of the top frame assembly and one of the frame
segments of the bottom frame assembly for displacing between an open position
and a closed position.
- 20 16. The demountable assembly as in claim 15, further comprising a lock system being
mounted with the frame segment of one of the top frame assembly and the bottom
frame assembly for engagement with the door when in the closed position for
impeding displacement thereof away from the closed position.
- 25 17. The demountable assembly as in claim 14, further comprising a base plate whereto
each of the frame segment of the bottom frame assembly is further coupled for
imparting rigidity thereto.
- 30 18. The demountable assembly as in claim 17, further comprising a plurality of leg
structures coupled to the base plate and extending away from the top frame

assembly, the top frame assembly the bottom frame assembly and the plurality of planar structures forming a display case, each of the plurality of leg structures being independently height-adjustable for levelling with a surface for supporting the display case from the surface.

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19. The demountable assembly as in claim 14, comprising a lid assembly for coupling to the top frame assembly, the lid assembly being shaped and dimensioned for the frame segments of the top frame assembly to extend adjacently along the periphery thereof.

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21. The demountable assembly as in claim 19, the lid assembly comprising:
a glass panel; and
a plurality of skirting structures extending along and being coupled to the periphery of the of the glass panel, each of the plurality of skirting structures defining a flange for suspending the lid assembly from the top frame assembly prior to coupling of the lid assembly to the top frame assembly.

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22. A demountable assembly comprising:

5 a guide structure defining a passageway extending along a first axis and at least one opening to the passageway, the guide structure further defining an aperture extending to the passageway and being positioned proximal the at least one opening; and

10 a bracket having a free end and an abutment for being received into the passageway through the opening, the passageway being shaped and dimensioned for limiting travel of the bracket to along the first axis, the bracket having a beveled notch positioned for aligning with the aperture when the bracket is received into the passageway,

15 wherein when a plunger is disposed into the aperture towards the passageway, the plunger engages with the beveled notch to further draw and bias the bracket into the passageway and the abutment towards the opening of the passageway.

A DEMOUNTABLE ASSEMBLY

Abstract

5 Described herein is a demountable assembly comprising a guide structure and a bracket. The guide structure defines a passageway, an opening to the passageway and an aperture extending to the passageway and positioned proximal the at least one opening. The bracket has a free end and an abutment for being received into the passageway through the opening with the passageway being shaped and dimensioned for limiting travel of the bracket to
10 along the passageway. The bracket has a beveled notch positioned for aligning with the aperture when the bracket is received into the passageway such that when a plunger is disposed into the aperture towards the passageway, the plunger engages with the beveled notch to further draw and bias the bracket into the passageway and the abutment towards the opening of the passageway.

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Figure 1