TRANSLATIONAL BRACKET ASSEMBLY

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ABSTRACT
A worktop assembly for use in a travel trailer including a first structural portion, a second structural portion and a plurality of bracket assemblies. The first structural portion has a first end and a second end and the second structural portion has a first end and a second end. The plurality of bracket assemblies include a first bracket assembly and a second bracket assembly. The first bracket assembly is connected to the first structural portion proximate to the first end and to the second structural portion proximate to the first end. The second bracket assembly is connected to the first structural portion proximate the second end and to the second structural portion proximate to the second end. Each bracket assembly has a plurality of pivot points. The plurality of bracket assemblies allow the first structural portion to move in a translational movement from a position above the second structural portion to a position beside the second structural portion while the pivot points have at least three pivot points in non-alignment during the translational movement.
TRANSLATIONAL BRACKET ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a non-provisional application based upon U.S. provisional patent application Ser. No. 60/782,188, entitled "BRACKET ASSEMBLY", filed Mar. 14, 2006.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a worktop assembly having a translational portion, and, more particularly, to a worktop assembly having a translational portion used in a travel trailer.

2. Description of the Related Art

It is known to translate a portion of a piece of furniture using two substantially parallel members that form a parallelogram during the translation. The translation of such a device often requires someone to stabilize the assembly by utilizing a handle. A disadvantage of such a construct is that as the pivot points approach a point where they are substantially aligned the translational portion will become unstable since the rotation of the translational portion is not prevented due to the alignment of the pivot points.

Often a pair of parallel members are utilized on each side of a transitional member and none of the parallel members are synchronized in their movement to allow the translational member to easily move. This may even cause the transitional member to become cocked, binding the assembly during its transition.

What is needed in the art is a bracket assembly that avoids the above-mentioned problems.

SUMMARY OF THE INVENTION

The present invention provides a bracket assembly for the transition of an upper unit of a cabinet to a position adjacent to the bottom unit.

The invention in one form is directed to a worktop assembly for use in a travel trailer including a first structural portion, a second structural portion and a plurality of bracket assemblies. The first structural portion has a first end and a second end and the second structural portion has a first end and a second end. The plurality of bracket assemblies include a first bracket assembly and a second bracket assembly. The first bracket assembly is connected to the first structural portion proximate to the first end and to the second structural portion proximate to the first end. The second bracket assembly is connected to the first structural portion proximate the second end and to the second structural portion proximate to the second end. Each bracket assembly has a plurality of pivot points. The plurality of bracket assemblies allow the first structural portion to move in a translational movement from a position above the second structural portion to a position beside the second structural portion when the pivot points have at least three pivot points in non-alignment during the translational movement.

An advantage of the present invention is that it prevents the alignment of pivot points thereby holding the two structural portions in a substantially similar attitude during transitions.

Another advantage of the present invention is that a torque member coordinates the movement of the two bracket assemblies.

Yet another advantage of the present invention is that it substantially reduces any binding as the upper cabinet portion moves to and from a position adjacent to the lower cabinet portion.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become more apparent and the invention will be better understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of one embodiment of a bracket system of the present invention connected to a worktop assembly;

FIG. 2 is a perspective view showing the upper portion of the worktop assembly of FIG. 1 adjacent to the lower portion;

FIG. 3 is a side view of the worktop assembly of FIGS. 1 and 2 showing upper portion adjacent to the lower portion;

FIG. 4 illustrates the bracket assembly of FIGS. 1-3 as it transitions the upper portion of the cabinet onto the lower portion; and

FIG. 5 is an exploded view of the bracket assembly utilized in FIGS. 1-4.

Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates one embodiment of the invention, in one form, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, and more particularly to FIGS. 1-5, there is shown a cabinet assembly 10, also known as a worktop assembly 10. Worktop assembly 10 includes a base cabinet 12, a top unit 14, bracket assemblies 16, legs 18 and a torque tube 20. Base cabinet 12 is a structural portion 12 and top unit 14 is a structural portion 14 of worktop assembly 10. Worktop assembly 10 is utilized in a pop-up camper type recreational vehicle, where it is advantageous to lower structural portion 14 inside the camper for transport. Structural portion 14 may include a sink and/or stovetop that is positioned at a conventional height as shown in FIG. 1. By lowering the height of worktop assembly 10, the top of the popup camper can be lowered thereby reducing wind resistance as it is towed. Structural portion 12 is connected to a floor of the camper in a semi-permanent manner and structural portion 14 is transitional from a position on top of structural portion 12 to a position beside structural portion 12. The repositioning of structural portion 14 is accommodated by the mechanism of bracket assembly 16. As structural member 14 is transitional beside structural portion 12, legs 18 are unfolded to support structural portion 14 in its transitional state. Torque tube 20 connects bracket assembly 16 thereby providing for uniform motion between the two ends of structural portion 14. Further, torque tube 20 coordinates the movement of bracket assembly 16 and further provides a handle or grasp bar for the transitioning of structural portion 14 to/from a position on structural portion 12.
Bracket assemblies 16 are mirror images of each other, and for the purposes of clarity components of one bracket assembly 16 will be discussed, with the understanding that mirror image components on the other bracket assembly 16 are likewise positioned on an opposite side of worktop assembly 10. Bracket assemblies 16 include a torque member 22, a side mount bracket 24, an inner control arm 26, an outer control arm 28 and a top mount 30. Torque member 22 also known as a torque lever 22 is pivotally connected to side mount bracket 24 and to top mount bracket 30. Torque tube 20 extends between torque lever 22 of one bracket assembly 16 to a torque lever 22 on the other bracket assembly 16. The positioning of torque tube 20 is not in line with pivot points on torque lever member 22. This allows the movement of torque tube 20 to have a mechanical advantage as it is moved causing the rotation of torque lever 22 about the pivot point associated with top mount bracket 30. Side mount bracket 24 is connected to a side of structural portion 14 and has three pivot points thereon. The first pivot point has been mentioned as associated with torque lever 22. At another location on side mount bracket 24 two additional rotational pivot points are respectively connected to outer control arm 28 and inner control arm 26. Inner control arm 26 is additionally connected in a pivotal manner with top mount bracket 30, which has an extension below the top of base cabinet 12. In a similar fashion outer control arm 28 is also connected to side mount bracket 24 and to top mount bracket 30. The distance between the pivot points on side mount bracket 24 relative to inner control arm 26 and outer control arm 28 are substantially similar to the distance between the pivot points on top mount 30 associated with control arms 26 and 28. Top mount bracket 30 is secured to structural portion 12. The positioning of the pivot points on control arms 26 and 28 allow control arms 26 and 28 to be substantially parallel to each other throughout their movement.

The association of the pivot points on bracket assembly 16 allows for a transition of top structural portion 14 from structural portion 12 that is slightly elevated as it transitions to its lower level beside structural portion 12 as structural portion 14 moves in its transitional movement. Legs 18 are extended to provide support to structural portion 14. Advantageously, the pivot points on bracket assembly 16 are such that they allow for a smooth transition of structural portion 14 to its stored position and from the stored position to its utility position. The strategic positioning of the pivot points prevents the binding of bracket assembly 16 and the geometry of control arms 26 and 28 allow for the top advantage of structural portion 14 to be below the supporting surface of structural portion 12. This is particularly important since the top surface of top unit 14 will often include a sink and/or stovetop with fixtures extending thereabove. While details illustrating the connecting plumbing and/or electrical and/or gas connections are not shown in the figures, for the purposes of clarity, it is to be understood that flexible connections are incorporated in worktop assembly 10, which may include the features illustrated therein. Structural portion 14 is repositioned on the top of structural portion 12 by lifting structural portion 14 with bracket assemblies 16 guiding the motion thereof. Pivot points 32, 34, 36 and 38 are such that at least one of the pivot points is not in alignment with the other three at all points of the movement of structural portion 14 relative to structural portion 12. This example is relative to four of the six pivot points of each bracket assembly 16 and at least one of the pivot points is such that it is not in alignment with any two or more of the other pivot points during the transitional movement of structural portion 14. It is important that at least one of the pivot points do not substantially align at any portion of the movement to thereby constrain the attitude of structural portion 14 relative to structural portion 12. When structural portion 14 is in position for travel, top 40 of portion 14 is lower than top 42 of portion 12.

In FIG. 5 translational bracket assembly 44 is illustrated showing torque member 20 connecting bracket assemblies 16 so that movement of bracket assemblies 16 remains coordinated with each other. Additionally, while the pivot points associated with control arms 26 and 28 are such that they are substantially parallel at all times the connection of torque arm 22 precludes the alignment or substantial alignment of all of the pivot points during the transitional movement of translational bracket assembly 44.

While this invention has been described with respect to at least one embodiment, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

What is claimed is:
1. A worktop assembly for use in a travel trailer, comprising:
   a first structural portion having a first end and a second end;
   a second structural portion having a first end and a second end;
   a plurality of bracket assemblies including a first bracket assembly and a second bracket assembly, said first bracket assembly being connected to said first structural portion proximate said first end and to said second structural portion proximate said first end, said second bracket assembly being connected to said first structural portion proximate said second end and to said second structural portion proximate said second end, each bracket assembly having a plurality of pivot points, said plurality of bracket assemblies allowing said first structural portion to move in a translational movement from a position above said second structural portion to a position beside said second structural portion while at least three of said plurality of pivot points are not substantially aligned with each other during said translational movement.

2. The worktop assembly of claim 1, further comprising a torque member connecting said first bracket assembly and said second bracket assembly.

3. The worktop assembly of claim 2, wherein said torque member is a torque tube.

4. The worktop assembly of claim 1, wherein said first structural portion has a top and said second structural portion has a top, when said first structural portion is in said position beside said second structural portion said top of said first structural portion is at a lower level than said top of said second structural portion.
5. The worktop assembly of claim 1, wherein each of said bracket assemblies include a set of substantially parallel arms.

6. The worktop assembly of claim 1, wherein said first bracket assembly and said second bracket assembly are substantially mirror images of each other.

7. The worktop assembly of claim 1, wherein said plurality of pivot points is six pivot points.

8. A translational bracket assembly for a worktop assembly for use in a travel trailer, comprising:
   a plurality of bracket assemblies including a first bracket assembly and a second bracket assembly, said first bracket assembly being connectable to a first portion of the worktop assembly proximate a first end and to a second portion of the worktop assembly proximate a first end, said second bracket assembly being connectable to a second end of the first portion and to a second end of the second portion, each bracket assembly having a plurality of pivot points, said plurality of bracket assemblies being movable so as to preclude an alignment of at least three of said pivot points during any portion of a translational movement of the first portion relative to the second portion.

9. The translational bracket assembly of claim 8, further comprising a torque member connecting said first bracket assembly to said second bracket assembly.

10. The translational bracket assembly of claim 9, wherein said torque member is a torque tube.

11. The translational bracket assembly of claim 8, wherein the first portion has a top and the second portion has a top, the top of said first portion being at a lower level than the top of the second portion when said first bracket assembly and said second bracket assembly are moved to a predetermined position.

12. The translational bracket assembly of claim 8, wherein each of said bracket assemblies include a set of substantially parallel arms.

13. The translational bracket assembly of claim 8, wherein said first bracket assembly and said second bracket assembly are substantially mirror images of each other.

14. The translational bracket assembly of claim 8, wherein each bracket assembly includes a torque lever arm that is connected to said torque member.

15. A method of lowering a profile of a worktop, comprising the steps of:
   moving a first structural portion of the worktop from a position atop a second structural portion of the worktop to a position adjacent said second structural portion, said moving step being accomplished by the rotation of a plurality of bracket members of a bracket assembly about a plurality of pivot points having at least three pivot points which are not in alignment during said moving step.

16. The method of claim 15, wherein said bracket assembly includes six pivot points.

17. The method of claim 15, further comprising an other bracket assembly connected to said bracket assembly by way of a torque member, said other bracket assembly being attached to both said first structural portion and said second structural portion.

18. The method of claim 17, wherein said torque member is proximate a top of said second structural portion when said first structural portion is atop said second structural portion.

19. The method of claim 18, wherein said torque member is at a higher level than a top of said first structural portion when said first structural portion is adjacent to said second structural portion.

20. The method of claim 19, wherein said torque member is proximate said top of said second structural portion when said first structural portion is adjacent to said second structural portion.

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