PARTITION SYSTEM

FIELD OF THE INVENTION

The present invention relates to partition systems and in particular to partition systems for partitioning space.

The invention has been developed primarily as a modular partition system for a dwelling and will be described herein with reference to this application. However, it will be appreciated that the invention is not limited to this particular field.

BACKGROUND OF THE INVENTION

Any discussion of prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of the common general knowledge in the field.

Partitions are structures for dividing a space into smaller sections. They can be used in various settings, including but not limited to homes, offices, commercial spaces, and public buildings. Partitions can be used to create private spaces, add aesthetic features to a room, or to create unique architectural features.

Modular partitions, also known as demountable partitions or movable walls, are made up of prefabricated panels that can be assembled or disassembled. Modular partitions are commonly used to create bespoke spaces.

Known modular partitions are constrained by their structure. Modular partitions are typically designed to be lightweight and flexible. They are not rigid enough to withstand strong winds or seismic activity. Also, known modular partitions are not customizable. If panels, cabinets, shelves and the like, are attached to the modular partition, the partition can become unstable because it is not designed to handle the

additional loads of the cabinets and shelves. Further, conventional modular partitions typically include many vertical panels for additional support. However, these vertical panels often make the modular partitions more bulky, and thus decrease mobility. They would also increase space and cost requirements, thereby reducing efficiency.

AN OBJECT OF THE INVENTION

It is an object of the invention to overcome or ameliorate at least one of the disadvantages of the prior art, or to provide a useful alternative.

It is an object of the invention in its preferred form to provide an adjustable or modular partition system.

It is an object of the invention in its preferred form to provide a partition system that facilitates adjustment or tilting of one or more intermediate frames.

It is another object of the invention in its preferred form to provide a partition system that facilitates vertical or horizontal adjustment of one or more intermediate frames.

It is yet another object of the invention in its preferred form to provide a partition system that conceals uneven surfaces.

It is a further object of the invention in its preferred form to provide a partition system that is handy, spacious and/or stylish.

SUMMARY OF THE INVENTION

According to the invention there is provided a partition system including:

a slidable base frame having one or more slots, the base frame being fixable to a floor by means of one or more fasteners engageable with the one or more slots;

a slidable top frame having one or more slots, the top frame being fixable to a ceiling by means of one or more fasteners engageable with the one or more slots; and

one or more intermediate frames, opposing ends of the one or more intermediate frames being fixedly attachable to the base frame and the top frame.

In one aspect, the partition system further includes one or more mechanism configured to adjust the incline of the one or more intermediate frame.

In one aspect, the one or more intermediate frames is fixedly attachable to the base frame or the top frame by means of one or more mechanism configured to adjust the incline of the one or more intermediate frames.

Preferably, the one or more mechanisms includes one or more brackets and one or more fasteners.

In one aspect, the one or more brackets includes one or more slots, the edge of the one or more slots being in sliding engagement with the one or more fasteners.

In one aspect, the one or more intermediate frames is adapted to move along the base frame or the top frame.

In one aspect, each of the one or more intermediate frames includes one or more supports captively held by one or more intermediate frames, the support (40) being in sliding engagement with the one or more intermediate frames.

The one or more intermediate frames further includes the support preferably being captively held by one or more teeth.

The partition system further includes one or more T-shaped brackets, each bracket being fixedly attachable to a corresponding one or more support.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a plan view of a partition system including shelve and cabinets according to the invention.

Figure 2 is a plan view of a partition system including T-shaped brackets according to the invention.

Figure 3 is a sectional view of a partition system including T-shaped brackets and one or more mechanism according to the invention.

Figure 4 is side view of a partition system including shelve and cabinets according to the invention.

Figure 5 is a side view of a partition system including T-shaped brackets according to the invention.

Figure 6 is a sectional view of a partition system including a slidable base frame, one or more intermediate frames, and a slidable top frame according to the invention.

Figure 7 is a front view of a partition system including a slidable base frame, one or more intermediate frames, and a slidable top frame according to the invention.

Figure 8 is a plan view of one or more mechanism of a partition system according to the invention.

Figure 9 is a front view of one or more mechanism of a partition system according to the invention.

Figure 10 is a side view of one or more mechanism of a partition system according to the invention.

Figure 11 is a plan view of a slidable base frame of a partition system according to the invention.

Figure 12 is a plan view of a slidable top frame of a partition system according to the invention.

Figure 13 is a plan view of a mechanism of a partition system according to the invention.

Figure 14 is a side view of a mechanism of a partition system according to the invention.

Figure 15 is a front view of a slidable base frame including one or more mechanism of a partition system according to the invention.

Figure 16 is a plan view of a slidable top frame including one or more mechanism of a partition system according to the invention.

Figure 17 is a side view of a slidable base frame or a slidable top frame including one or more mechanism of a partition system according to the invention.

Figure 18 is an illustrative view of the movement of a slidable base frame of a partition system according to the invention.

Figure 19 is a front view of an intermediate frame of a partition system according to the invention.

Figure 20 is a plan view of an intermediate frame of a partition system according to the invention.

Figure 21 is an exploded view of an intermediate frame of a partition system according to the invention.

Figure 22 is a top view of an intermediate frame of a partition system according to the invention.

Figure 23 is a plan view of a T-shaped bracket is fixable to a support of a partition system according to the invention.

Figure 24 is a sectional view of an intermediate frame fixedly attachable to a base frame of a partition system according to the invention.

Figure 25 is a plan view of a panel with one or more locking mechanisms of a partition system according to the invention.

Figure 26 is a side view of a panel with one or more locking mechanisms of a partition system according to the invention.

Figure 27 is a front view of a panel with one or more holes of a partition system according to the invention.

Figure 28 is a top sectional view of a panel with one or more locking mechanisms of a partition system according to the invention.

THE PREFERRED EMBODIMENT OF THE INVENTION

Referring to the drawings, the partition system 1 can be seen in Figure 1 having been fitted with shelves 2 and cabinet 4. The partition system 1 has a slidable base frame 8 fixable to the floor 10, a slidable top frame 12 fixable to a ceiling 14, and one or more intermediate frames 16, opposing ends of the one or more intermediate frames 16 fixedly attachable to the base frame 8 and the top frame 12, as best seen in Figures 2-7. In the preferred embodiment shown in Figures 3 and 6-7, the partition system 1 has

four intermediate frames 16. Further, the partition system 1 has one or more mechanism 18 configured to adjust the incline of the one or more intermediate frame 16, as shown in Figures 7-10. In the preferred embodiment shown in Figures 7-9, the partition system 1 has eight mechanism 18.

The base frame 8 has one or more slots, as shown in Figure 11. The one or more slots has one or more oval-shaped holes 20 adapted to facilitate sliding of the base frame 8 relative to the floor 10. The one or more slots has one or more holes 22 adapted to secure the one or more mechanism 18 by means of fasteners 34. In the preferred embodiment shown in Figure 11, the base frame 8 has four oval-shaped holes 20, and eight holes 22.

The top frame 12 has one or more slots, as shown in Figure 12. The one or more slots has one or more oval-shaped holes 24 adapted to facilitate sliding of the top frame 12 relative to the ceiling 14. The one or more slots has one or more holes 26 adapted to secure the one or more mechanism 18 by means of fasteners 36. In the preferred embodiment shown in Figure 12, the top frame 12 has four oval-shaped holes 24, and eight holes 26.

The one or more mechanism 18 has one or more corresponding brackets 28 and one or more corresponding fasteners 30, as shown in Figures 13-17. The one or more brackets 28 is in the form of a U-shaped bracket. The one or more brackets 28 has one or more slots 32. The edge of the one or more slots 32 is in sliding engagement with the one or more fasteners 30. The one or more intermediate frames 16 is adapted to move along the base frame 8 or the top frame 12 by means of the one or more fastener 30, as also shown in Figure 24. The one or more fastener 30 is fixable to the one or more intermediate frame 16. The one or more fastener 30 is in sliding engagement with the one or more slots 32.

The one or more bracket 28 is fixable to the base frame 8 by means of one or more fasteners 34, as shown in Figure 15 & 17. The base frame 8 is fixed to the floor 10 by means of one or more fasteners 38, as also shown in Figure 18. The one or more fasteners 38 is engageable or in sliding engagement with the one or more oval-shaped

holes 20. In a preferred embodiment, the base frame 8 is fixed to the floor 10 by means of four fasteners 38. The four fasteners 38 are engaged to corresponding four oval-shaped holes 20 of the base frame 8 to fix the base frame 8 to the floor 10.

Similarly, the one or more bracket 28 is fixable to the top frame 12 by one or more fastener 36, as shown in Figure 16-17. The top frame 12 is fixable to the ceiling 14 by means of one or more fasteners (not shown). The one or more fasteners is engageable or in sliding engagement with the one or more oval-shaped holes 24. In a preferred embodiment, the top frame 12 is fixed to the ceiling 14 by means of four fasteners (not shown). The four fasteners (not shown) are engaged to corresponding four oval-shaped holes 24 of the top frame 12 to fix the top frame 12 to the ceiling 14.

The base frame 8 is also slidable laterally (see arrows in Figure 18) and relative to the floor 10 by means of the one or more fasteners 38. The one or more fasteners 38 is slidably engageable with the one or more oval-shaped holes 20. This arrangement facilitates horizontal adjustment of the base frame 8.

Similarly, the top frame 12 is slidable back and forth relative to the ceiling 14 by means of one or more fasteners engaged with the one or more oval-shaped holes 24. The one or more fasteners is slidably engageable with the one or more oval-shaped holes 24. This arrangement facilitates horizontal adjustment of the top frame 12.

In the preferred embodiment shown in Figures 11-16, the base frame 8 has corresponding four brackets 28. Eight fasteners 34 are adapted to pass through the corresponding eight holes 22 of the base frame 8 to fix the corresponding four brackets 28 to the base frame 8. The top frame 12 has corresponding four brackets 28. Eight fasteners 36 are adapted to pass through the eight holes 26 of the top frame 12 to fix the corresponding four brackets 28 to the top frame 12.

The one or more intermediate frames 16 has one or more supports 40 captively held by the one or more intermediate frames 16. The one or more supports 40 is in sliding engagement with the one or more intermediate frames 16, as shown in Figures 19-22. The one or more supports 40 is captively held by one or more teeth 42.

In a preferred embodiment, one or more elongated openings 44, 46 is provided. One of the elongated openings 44 is adapted to receive the one or more supports 40. The one or more support 40 is slidably engaged to the elongated opening 44. In the preferred embodiment as seen in Figure 3, there are four elongated openings 44.

The one or more support 40 has one or more stoppers 48 adapted to secure the one or more support 40 on the corresponding one or more intermediate frames 16. The one or more T-shaped brackets 6 is fixedly attachable to the one or more support 40. In the preferred embodiment as seen in Figure 3, there are eight stoppers 48.

The one or more support 40 has one or more holes 60. The one or more support 40 is fixedly attachable to the one or more T-shaped bracket 6. The one or more T-shaped brackets 6 has corresponding one or more holes 62. One or more screws 64 is adapted to secure the one or more T-shaped brackets 6 to the one or more support 40 by passing the one or more T-shaped brackets 6 through the one or more holes 60,62. In the preferred embodiment as seen in Figures 3 and 23, there are twenty four holes 60, twenty four holes 62, and twenty four screws 64.

In a preferred embodiment, the preferred position facilitates a horizontal alignment of the one or more T-shaped brackets 6. In other words, a horizontal alignment is achieved if at least two of the supports 40 are located at a same position or height on the corresponding two or more intermediate frames 16. This facilitates horizontal alignment of the two or more T-shaped brackets 6. In the preferred embodiment as seen in Figure 3, there are eight T-shaped brackets 6, and corresponding eight supports 40.

Another elongated opening 46 receives a locking mechanism 50. The locking mechanism 50 is adapted to lock the one or more intermediate frames 16 to another one or more locking mechanism 52. The other one or more locking mechanism 52 is attachable to a panel 54, as shown in Figures 25-26. In a preferred embodiment, the one or more locking mechanism 50, 52 is in the form of the dual clip lock unit in SG Patent Application No. 10202000394X, or another suitable mechanism. The one or more intermediate frames 16 is fixedly attachable to the base frame 8, as shown in Fig 24. As

shown in Figure 27-28, the panel 54 has one or more holes 56 adapted to allow the one or more T-shaped brackets 6 to fit and pass through the one or more holes 56. The shelve 2 and cabinet 4 are fixedly attachable to the one or more T-shaped brackets 6. In one form, the one or more intermediate frames 16 has one or more teeth 58 adapted to keep the locking mechanism 50 in place. In another form, the one or more teeth 58 is also adapted to prevent the locking mechanism 50 from coming out of the elongated opening 46.

In the preferred embodiment as seen in Figures 3, 7, 25 and 27, there are four elongated openings 46, four locking mechanism 50 and corresponding four locking mechanism 52, eight holes 56, and eight teeth 58.

The Person Skilled in the Art will appreciate that the one or more cabinet 4, T-shaped brackets 6, intermediate frames 16, mechanism 18, oval-shaped holes 20, 24, holes 22, 26, brackets 28, fasteners 30, 34, 36, 38, slots 32, supports 40, teeth 42, elongated openings 44, 46, stoppers 48, locking mechanism 50, 52, holes 56, teeth 58, holes 60,62, or screws 64 can have two or three or another suitable number thereof.

In use, the base frame 8 and the top frame 12 of the partition system are first fixed to the floor 10 and ceiling 14, respectively.

To fix the base frame 8 and the top frame 12 to the floor 10 and ceiling 14. Each of the base frame 8 and top frame 12 are first slid into position in alignment with each other. Fasteners 38 are then partly driven into the floor 10 and ceiling 14 and through the oval shaped holes 20 of the base frame 8 and oval shaped holes 24 of the top frame 12, and into sliding engagement with holes 20 and 24. The base and top frame 8 and 12 can be slid along the floor 10 and ceiling to horizontally align them to one another.

Next, four mechanisms 18 are attached to the base frame 8 and four are attached to the top frame 12 into position such that the mechanisms 18 attached to the top frame are aligned with those attached to the both frame 12, so that each mechanism 18 attached to the bottom frame 8 and top frame 12 aligned with the other forms a pair. A

corresponding four intermediate frames 16 are attached in between corresponding pair of mechanisms.

The fasteners 30 are engaged with the slots 32 of U-shaped bracket 28 of each mechanism 18 and are with the ends of the intermediate frames 16. Each of the intermediate frames 16 can be adjusted to a desired incline and the fasteners 30 then used to fix the intermediate frame into the desired incline.

Advantageously, the fasteners 30 can be loosened to adjust the inclined of the intermediate frames 16.

The T-shaped brackets 6 are then fixed to corresponding the supports 40. The supports 40 together with the T-shaped brackets 6 can be slid along corresponding intermediate frame and locked into a preferred position along the intermediate frame by using stopper 48.

Advantageously, the T-shaped brackets and supports 40 can be locked into position such that at least one T-shaped bracket aligns. A cabinet 4 can be fitted upon the partition system and then filled with objects for storage.

In a preferred embodiment, the partition system can be fitted with shelves or with shelves and a cabinet, or another useful storage arrangement. The shelves and/or cabinet can be used for storage of books, clothes, dishes, files, or other belongings.

It will be appreciated that the illustrated partition system 1 in its preferred form is adjustable and it provides greater tolerance for strong winds or shaking. Further, adjustment or tilting of one or more intermediate frames makes the partition system 1 flexible or maneuverable. Also, the partition system 1 eliminates the use of additional support if it is installed in front of a wall as it can stand alone without the need for any supporting structure. Moreover, it conceals uneven surfaces of structures behind it, thereby improving the aesthetic features of the room. It is also modular and thus saves installation costs. Further, it is notable that the partition system 1 is useful, handy,

spacious and/or stylish. The present invention conceals the elements thereof, thereby making it tidy, aesthetically pleasing, and practical.

While various aspects or embodiments of the invention are described above, it should be noted that these are not restrictive. The invention may be embodied in many other forms by those skilled in the art. Throughout the entire specification, expressions such as “including”, “have”, “having”, “comprising”, are non-exclusive, allowing other features, components, elements, or steps, not explicitly described as present. Also, expression such as “configured to” can also mean “adapted to”. Further, elements in singular forms can be embodied in plural forms.

Claims

1. A partition system (1) including:

a slidable base frame (8) having one or more slots, the base frame (8) being fixable to a floor (10) by means of one or more fasteners (38) engageable with the one or more slots (20);

a slidable top frame (12) having one or more slots, the top frame (12) being fixable to a ceiling by means of one or more fasteners engageable with the one or more slots (24); and

one or more intermediate frames (16), opposing ends of the one or more intermediate frames (16) being fixedly attachable to the base frame (8) and the top frame (12).

2. A system according to claim 1, further including one or more mechanism (18) configured to adjust the incline of the one or more intermediate frame.

3. A system according to claim 1, wherein the one or more intermediate frames (16) is fixedly attachable to the base frame (8) or the top frame (12) by means of one or more mechanism (18) configured to adjust the incline of the one or more intermediate frames (16).

4. A system according to claim 2 or 3, wherein the one or more mechanisms (18) includes one or more brackets (28) and one or more fasteners (30).

5. A system according to claim 4, wherein the one or more brackets (28) includes one or more slots (32), the edge of the one or more slots (32) being in sliding engagement with the one or more fasteners (30).

6. A system according to any one of the previous claims, wherein the one or more intermediate frames (16) is adapted to move along the base frame (8) or the top frame (12).

7. A system according to claim 1, wherein each of the one or more intermediate frames (16) includes one or more supports (40) captively held by one or more

intermediate frames, the support (40) being in sliding engagement with the one or more intermediate frames (16).

8. A system according to claim 7, wherein the one or more intermediate frames (16) further including the support (40) being captively held by one or more teeth (42).

9. A system according to claim 8, further including one or more T-shaped brackets (6), each bracket (6) being fixedly attachable to a corresponding one or more support (40).