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(54) **PORTABLE ROOM DIVIDER WITH GLIDE FEET**

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(57) **ABSTRACT**

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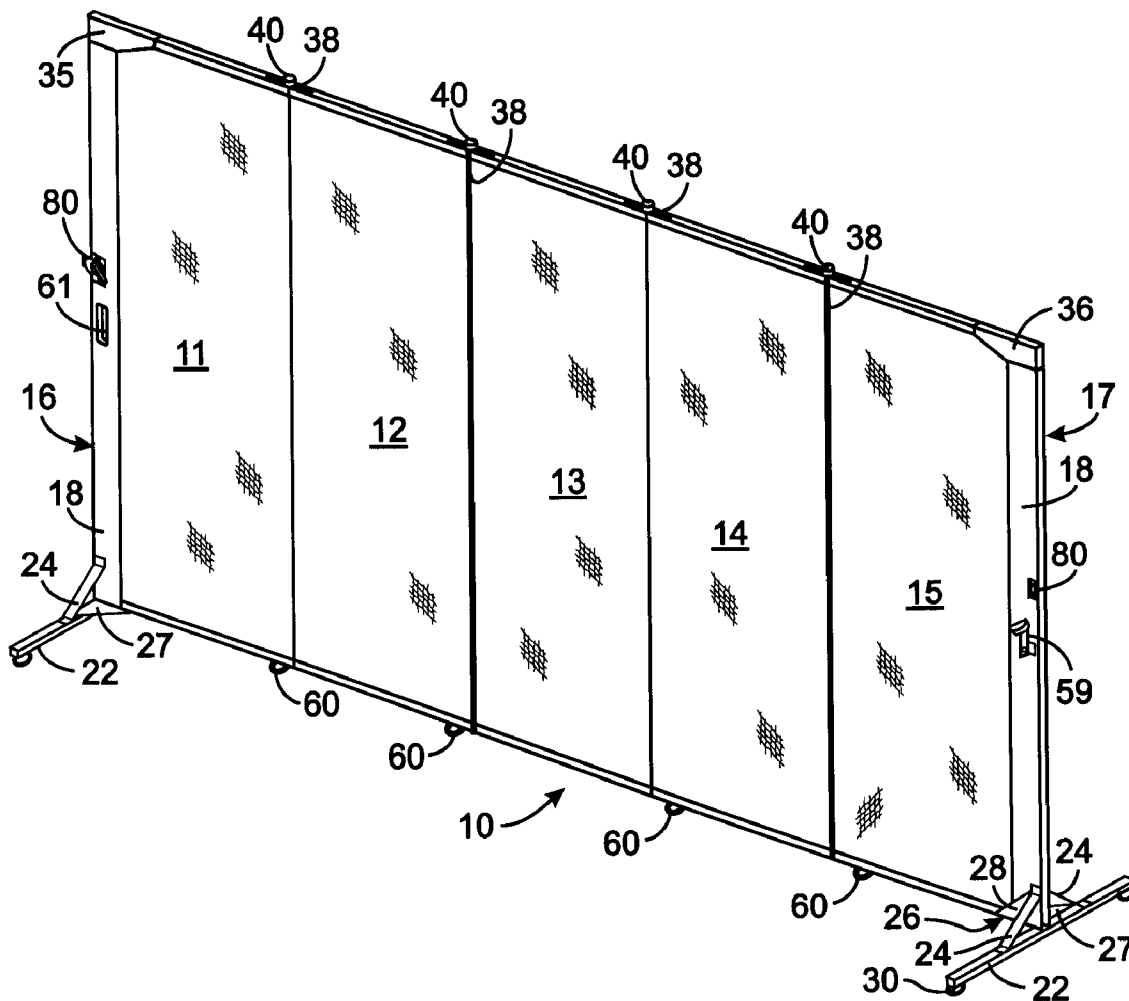
A portable, freestanding room divider includes a plurality of wall panels connected together by a plurality of hinges. A first end member has a first vertical post fastened to a vertical edge of a first wall panel and a second end member has a second vertical post fastened to a vertical edge of a last wall panel. Each end member includes a transverse base bar welded to the vertical post with the ends of the transverse base located on opposite sides of the vertical post. A separate end glide foot supports each end of the transverse base bar. A self-leveling intermediate glide foot projects downward from at least some of the plurality of wall panels to support those wall panels on a floor.

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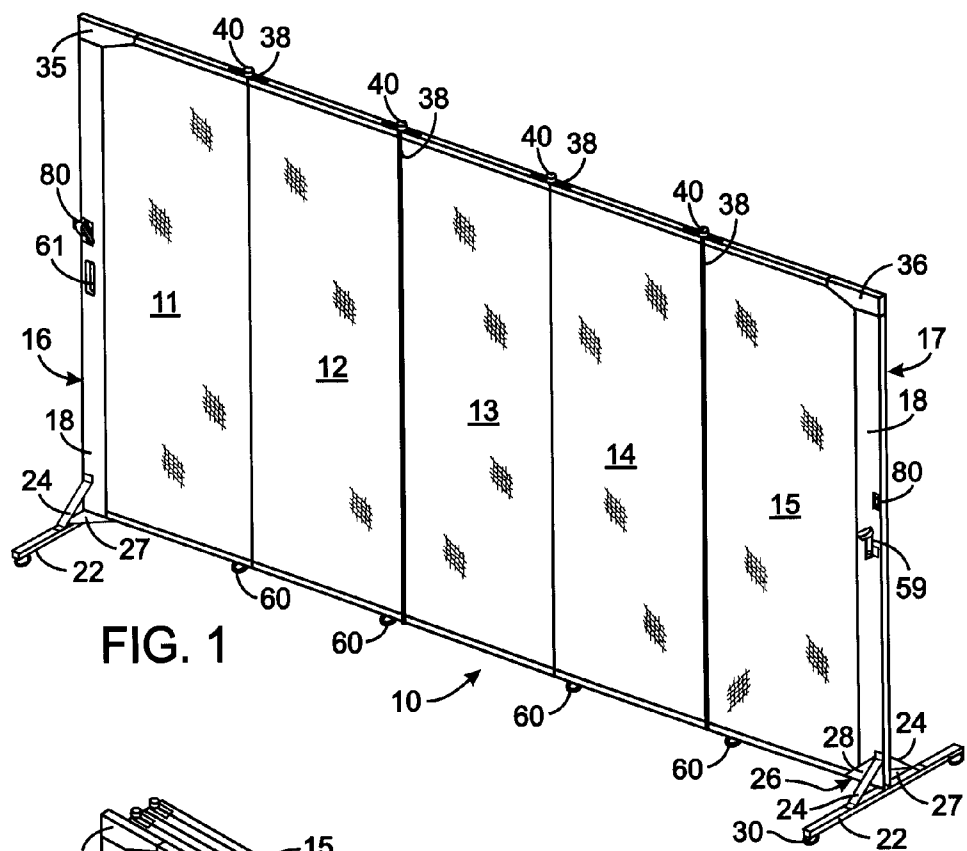


FIG. 1

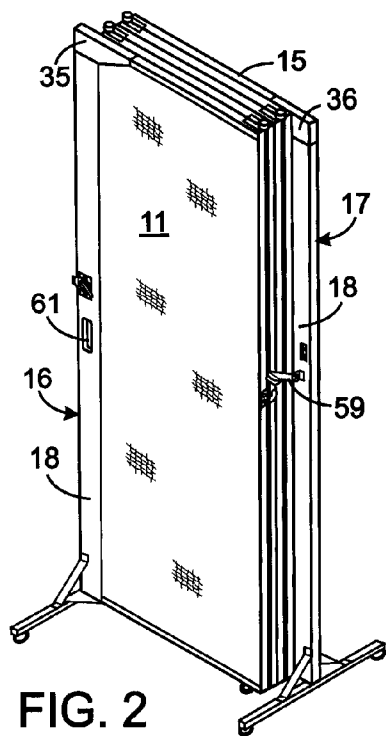


FIG. 2

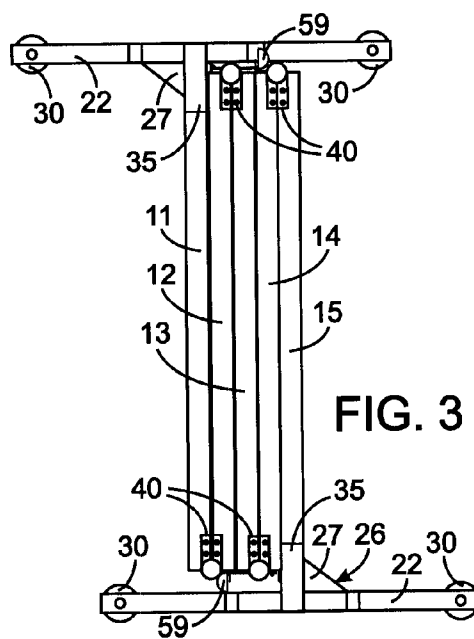


FIG. 3

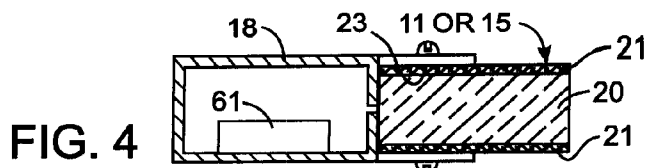


FIG. 4

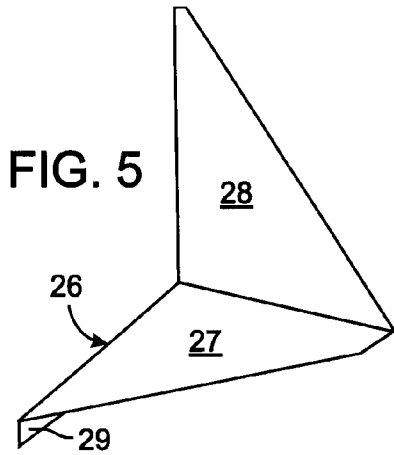


FIG. 5

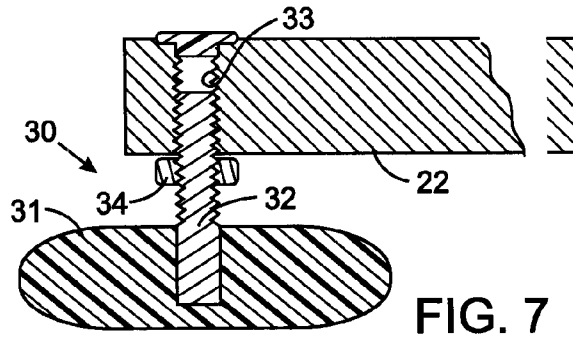


FIG. 7

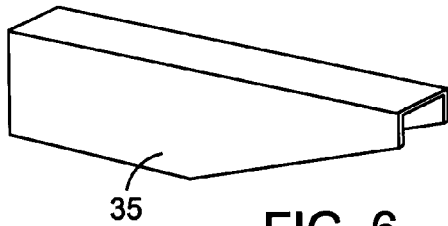


FIG. 6

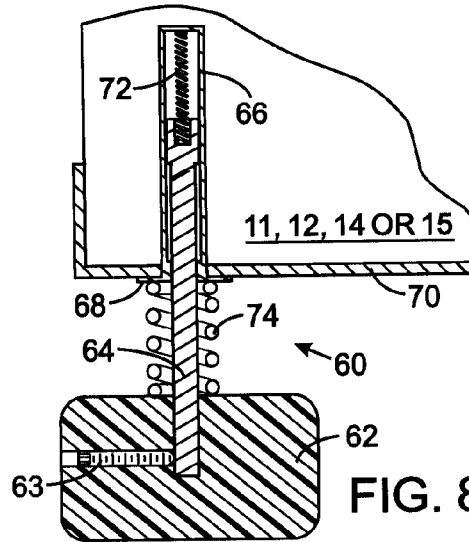


FIG. 8

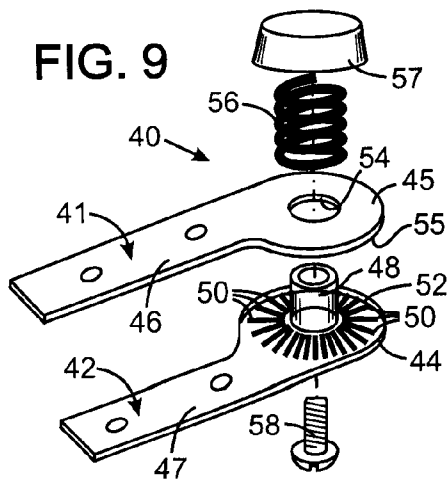


FIG. 9

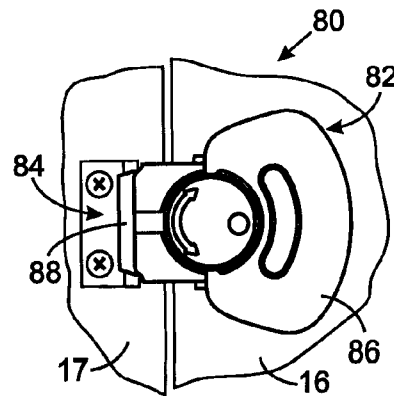


FIG. 10

**PORTABLE ROOM DIVIDER WITH GLIDE FEET**

**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] Not Applicable

**STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

[0002] Not Applicable

**BACKGROUND OF THE INVENTION**

[0003] 1. Field of the Invention

[0004] The present invention relates to room dividers, more particularly, to portable, freestanding room dividers.

[0005] 2. Description of the Related Art

[0006] There are times that it is desired to divide large areas, such as meeting rooms and assembly halls, into smaller areas. One method of doing this is by movable wall panels which are suspended from and move on tracks attached to the ceiling and/or floor. This partition system is relatively expensive and inflexible as the space only can be divided according to the pattern of the tracks.

[0007] Another method for dividing large rooms into smaller private areas is to use movable freestanding screens. This method is relatively inexpensive and permits the formation of areas of a wide variety of sizes and shapes. However, many freestanding screens must be placed in a zigzag pattern in order to stand by themselves. That zigzag pattern consumes an amount of otherwise useable floor space.

[0008] U.S. Pat. No. 5,272,848 discloses a portable room divider which has a plurality of hinged wall panels positioned between a pair of transverse end members. The wall panels are supported by a plurality of casters mounted on feet which project laterally from the bottom of every wall panel. The end members also are supported by casters. The combination of wall panels and end members can be folded into a compact configuration for easy movement and storage. The hinged wall panels can be unfolded to form a straight wall which is supported in a stable manner by the casters on the feet and the end members. A hinged junction between two adjacent wall panels can be bent at an angle to form a corner of the temporary wall, for example a 90° corner for a rectangular subdivided area.

[0009] To further stabilize an extended portable room divider, removable clips were furnished to attach at the upper edges of two adjacent wall panels. Each rigid clip bridged the hinge joint to secure the angle between the wall panels. A set of clips for 90°, 135° and 180° wall panel angles were provided. Although the rigid clips worked well at preventing the installed wall panels from bending at the hinges, the placement and removal of the clips increased the time required to set-up and remove the portable room divider. Between use, the clips were stored in a container which had to be kept with the room divider and even with the container individual clips became lost over time.

[0010] This portable room divider described in the aforementioned patent functioned extremely well on relatively level floors. However, the floors in some new and many older buildings tend to be uneven with humps and depressions. When the portable room divider is unfolded in such buildings, some of the casters do not touch the low sections of the floor and thus do not properly support the associated wall panels.

When a caster does not touch the floor, the associated wall panel may wobble with the slightest lateral force, thereby rendering the entire room divider unstable. The obvious solution is to place shims between the casters and the floor, but this required additional set-up and removal steps. In addition, the shims have to be stored when not in use and located each time the portable room divider is needed.

[0011] In some applications, the freestanding room divider was moved infrequently so that casters were not required. For example, charter and private schools frequently purchase or lease existing buildings with large areas of undivided floor space, such as a vacant retail store. Often money was not available to invest in permanent walls or even dividers attached to the building framework. However, the schools required relatively long term, i.e. several months, subdivision of the space into classrooms and yet needed to be able to revise the classroom layout for the next semester or school year. Although the schools required a room divider that can be moved into a different configuration, such a divider must resist abuse by the students.

[0012] Therefore, a need exists for a portable, freestanding room divider that does not employ wheels and which also is convenient to move when reconfiguring the room for different functions.

**SUMMARY OF THE INVENTION**

[0013] A portable, freestanding room divider is provided to partition large rooms into smaller areas. This room divider comprises a plurality of hinged wall panels, which can be folded against one another for compact storage and unfolded to form a wall. The plurality of wall panels include a first wall panel, a last wall panel, and at least one intermediate wall panel. A plurality hinges connect the first wall panel to an intermediate wall panel, the last wall panel to an intermediate wall panel, and each intermediate wall panel to two of the plurality of wall panels.

[0014] A separate intermediate glide foot projects downward from at least some of the wall panels for supporting the room divider on a floor. Preferably, a self-leveling mechanism maintains each intermediate glide foot in contact with the floor, even if the floor is not flat.

[0015] A first end member has a first vertical post fastened to a vertical edge of the first wall panel. Preferably the first vertical post has a channel in which the vertical edge is received. A first transverse base bar is welded horizontally to a bottom end of the first vertical post with the ends of the first transverse base bar located on opposite sides of the first vertical post. A first pair of end glide feet support the first transverse base bar adjacent its two ends. The end glide feet preferably can be manually adjusted to accommodate uneven floors. An identical second end member is fastened to a vertical edge of the last wall panel.

[0016] In a preferred embodiment, each of the first and second end members has a pair of struts that reinforce the connection between the vertical post and the adjacent transverse base bar. In addition, a lower gusset has a base plate, attached to the transverse base bar, and a first panel plate, extending orthogonally from the base plate, is attached to the first vertical post. An upper gusset is connected to an upper section of the vertical post and engages the adjacent wall panel.

[0017] A further aspect of the freestanding room divider includes a plurality of position control hinges which are provided with each one being attached between two of the wall

panels. Each position control hinge has a pair of surfaces which abut in a manner that resists pivotal motion between the attached wall panels. The position control hinge prevents low magnitude forces acting on the wall panels from causing one wall panel to pivot with respect to an adjacent wall panel, thus aiding the stability and positioning of the room divider.

#### BRIEF DESCRIPTION OF THE DRAWINGS

- [0018] FIG. 1 is a perspective view of a portable, freestanding, room divider according to the present invention in which a plurality of panels are positioned to form a straight wall;
- [0019] FIG. 2 is a perspective view of the room divider of FIG. 1 with the wall panels folded against each other for storage and transport;
- [0020] FIG. 3 is a top view of the room divider in the folded configuration;
- [0021] FIG. 4 is a horizontal cross section view illustrating attachment of end members to the first and last wall panels of the room divider;
- [0022] FIG. 5 is a perspective view of a lower gusset plate at the ends of the room divider;
- [0023] FIG. 6 is a perspective view of an upper gusset plate at the ends of the room divider;
- [0024] FIG. 7 is a cross section view of an end foot assembly attached to a base bar that projects transversely outward from ends of the room divider;
- [0025] FIG. 8 is a cross section view of a self-leveling foot assembly attached to the wall panels;
- [0026] FIG. 9 is a perspective view of a panel position control hinge that joins two wall panels; and
- [0027] FIG. 10 illustrates a multi-unit connector fastening two abutting room dividers together.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0028] With reference to FIG. 1, a portable, freestanding room divider 10 with five wall panels 11, 12, 13, 14, and 15 unfolded to form a straight wall. The wall panels 11-15 are connected by hinges so that walls of various geometric shapes can be created by forming acute angles between adjacent wall panels 11. Although an exemplary room divider 10 has five wall panels, the number of wall panels can vary to provide room dividers of different lengths.

[0029] The first and last wall panels 11 and 15 are attached to end members 16 and 17, respectively. As seen in FIG. 4, each member 16 and 17 has a vertical post 18 forming a U-shaped channel 23 in which a vertical edge of the respective first or last wall panel 11 or 15 is received and attached by screws. The wall panels have a rigid core 20 with major planar surfaces to which coverings 21 of fabric and other materials are glued.

[0030] Referring to FIGS. 1-3, each end member 16 and 17 has a generally inverted T-shape formed by the vertical post 18 with a bottom end welded to the middle of a transverse base bar 22. The transverse base bar 22 projects outward on both sides of the vertical post 18, orthogonally with respect to the plane of the associated end wall panel 11 or 15. A separate strut 24 extends at approximately a 45° angle between the vertical post 18 and each side of the transverse base bar 22 and is welded to those components to reinforce the joint of the inverted T-shaped end member 16 or 17.

[0031] A lower gusset 26 also reinforces that joint. With additional reference to FIG. 5, the lower gusset 26 has a

horizontal base plate 27 from which a panel plate 28 extends vertically. When the lower gusset 26 is attached to an end member 16 or 17, the panel plate 28 is welded to one side of the vertical post 18 so that the horizontal base plate 27 extends under the vertical post abutting the base bar 22 on the other side. The base plate 27 has a vertical flange 29 that extends along the base bar 22 and is welded thereto. Although it is preferred to fasten various components of the end members 16 and 17 by welding, other fastening techniques can be employed.

[0032] The base bar 22 of each end member 16 and 17 has a separate first glide foot assembly 30 near each end. As shown in detail in FIG. 7, each first glide foot assembly 30 comprises a disk-shaped, end glide foot 31 in which a threaded stud 32 is molded. That stud 32 is threaded upward into a hole 33 that extends through the base bar 22. The position of the glide foot with respect to the base bar 22 is adjusted to maintain the wall panels 11-15 vertical and prevent them from wobbling. A lock nut 34 on the stud 32 is tightened against the bar 22 to hold the end glide foot 31 in the desired position, while still permitting subsequent adjustment. The end glide foot is made of nylon or a similar low friction material that enables a person to slide the room divider 10 across the floor with minimal drag. The rounded corners of the end glide foot 31 further facilitate that movement.

[0033] The top of the vertical post 18 for the first end member 16 has a first upper gusset 35 attached thereto, by screws for example, and to the top edge of the first wall panel 11. Details of the channel shaped upper gusset are shown in FIG. 6. Similarly, a second upper gusset 36 is attached the top of the vertical post 18 of the second end member 17 and to the top edge of the last wall panel 15. The first and second upper gussets 35 and 36 reinforce the upper corner joint between the respective wall panel and the end member.

[0034] Each wall panel 11-15 is connected to the immediately adjacent wall panel or panels by a separate piano hinge 38, which extends substantially the entire height of the wall panels. The hinges 38 at each end of the intermediate wall panels 12-14 are on alternate sides of those panels. With reference to FIG. 1, a hinge 38 between wall panels 11 and 12 is on the front side of the room divider 10, whereas the hinge joining wall panels 12 and 13 is located on the rear side. Likewise, the hinge 38 between wall panels 13 and 14 is on the front side of the room divider 10, whereas the hinge joining wall panels 14 and 15 is on the rear side. This alternating pattern enables the room divider 10 to be folded easily and quickly like an accordion door for transport and compact storage as shown in FIGS. 2 and 3. When forming the wall, the hinge 38 permits two adjacent wall panels to be positioned with respect to each other at an angle from 0° to 180°, enabling any wall configuration to be created for the partitioned space. The full height hinge 38 provides stability at the junction between adjacent wall panels and resists flexing of the unfurled room divider at that junction.

[0035] For additional stability, a panel position control hinge 40 is located at the top of each junction between two wall panels 11-15. The position control hinges 40 provide resistance to pivotal motion between adjacent wall panels so that, after being positioned to divide a room, a slight amount of force will not cause pivoting at the hinged junction. This resistance further stabilizes the room divider 10 and ensures integrity of room divider placement.

[0036] FIG. 9 illustrates the details of each panel position control hinge 40 which includes a pair of hinge leaves 41 and 42. Each hinge leaf 41 and 42 has a circular portion 44 or 45 from which a leg 46 or 47 respectively projects and each leg is attached by screws to the top edge of a different wall panel 11-15 (see FIG. 3). The illustrated panel position control hinge 40 depicts the orientation of the hinge leaf 41 and 42 when the two wall panels are folded side-by-side. The second hinge leaf 42 has an integral tube 48 projecting upward at the center of the circular portion 44 and has a plurality of ribs 50 on its upper surface 52 extending radially around the integral tube. The first hinge leaf 41 has an aperture 54 at the center of its circular portion 45 through which the tube 48 of the second hinge leaf 42 extends in the assembled position control hinge 40. The first hinge leaf 41 has a like plurality of indentations (not visible) extending radially around the aperture 54 on the lower surface 55 of its circular portion 45. A spring 56 is located between the upper surface of the first hinge leaf 41 and a cap 57 that engages the end of the tube 48 which projects through the aperture 54 in the first hinge leaf. A machine screw 58 extends through the tube 48 and threads into an aperture in the cap 58 to hold the position control hinge components together.

[0037] In the assembled position control hinge 40, the two hinge leaves 41 and 42 abut with the ribs 50 on second hinge leaf 42 being received in the indentations in the first hinge leaf 41. As the first and second hinge leaves 41 and 42 rotate about the axis of tube 48, the ribs 50 ride into and out of the indentations against the force of the spring 56. This action provides resistance to such rotation and thus to pivotal motion between the wall panels 11-15 to which the position control hinge 40 is attached. As a result of that resistance, movement of the hinge occurs in a controlled, intentional manner. Additional resistance can be provided by attaching position control hinges at the bottom of each junction between adjacent wall panels 11-15.

[0038] Referring again to FIGS. 2 and 3, when the wall panels 11-15 are folded at the hinges 38, the room divider 10 is held in that state by releasable clasps 59 on the end members 16 and 17 of the first and last wall panels 11 and 15, respectively. The length of the arm of the clasp 59 is selected to correspond to the number of panels of the room divider and thus the thickness of the folded assembly. This fastening allows the folded room divider 10 to be pulled or pushed into position for storage or setup. A recessed handle 61 is provided on each end member 16 and 17 for that movement.

[0039] As seen in FIG. 1, a second glide foot assembly 60 is provided at the bottom of most of the wall panels (e.g. panels 11, 12, 14 and 15), preferably the middle wall panel 13 at the center of the divider does not have a second glide foot assembly. Referring to FIG. 8, each second glide foot assembly 60 extends into the bottom edge of the associated wall panel 11, 12, 14 and 15 and has an intermediate glide foot 62 located beneath that wall panel. As used herein, "beneath" means that the intermediate glide foot is directly below the respective wall panel and is not offset to one side. The intermediate glide foot 62 is made of nylon or a similar low friction material that enables a person to slide the room divider 10 across the floor with minimal resistance. The rounded corners of the intermediate glide foot 62 further facilitate ease of motion. The intermediate glide foot 62 is affixed by a set screw 63 to the end of a shaft 64 that projects upward into a metal guide tube 66. The guide tube 66 extends into the respective wall panel 11, 12, 14

and 15 and has an outward flange 68 at the bottom end which is welded to a metal bottom frame 70 of that wall panel.

[0040] A first helical compression spring 72 biases the upper end of the shaft 64 away from a closed upper end of the guide tube 66. A second helical compression spring 74 is located around the shaft 64 engaging and biasing the intermediate glide foot 62 away from a bottom frame 70 of the wall panel. When the room divider 10 is unfolded to partition a room, the compression springs 72 and 74 ensure that each intermediate glide foot 62 contacts the floor in spite of undulations in the floor surface. Second compression springs 74 with different spring forces can be selected for use depending upon the number of wall panels and thus the overall weight of the room divider 10. The second compression springs 74 can be replaced by ones having a different spring force by removal of the intermediate glide foot 62. The combined spring force is selected whereby on a level floor, the weight of the wall panels 11-15 slightly compresses the springs 72 and 74 so that each intermediate glide foot 62 is at an intermediate travel position with respect to the wall panel. In other words, the intermediate glide foot 62 is neither at a fully raised or fully lowered position and thus can accommodate depressed and humped areas of an uneven floor. Because the set of intermediate glide feet 62 on the room divider 10 self-adjust to compensate for non-flat floors, the wall panels 11-15 always are supported by those glide feet and cannot easily wobble.

[0041] When two separate room dividers 10 abut end to end, multi-unit connectors 80 on the end members 16 and 17 of the first and last wall panels 11 and 15 interlock to secure the room dividers 10 together. With reference to FIG. 10, a draw latch 82 is attached by screws to the end member 16 on one room divider and has a wing handle 86 connected by a cam mechanism to a sliding hook 88. A keeper plate 84 is attached by screws to the end member 17 on the abutting room divider. Rotating the wing handle 86 extends the hook 88 beyond a catch on the keeper plate 84. Reverse rotation of the wing handle 86 draws the hook 88 toward its room divider and against the keeper plate 84, thereby securing the two room dividers together.

[0042] The foregoing description was primarily directed to a preferred embodiment of the invention. Although some attention was given to various alternatives within the scope of the invention, it is anticipated that one skilled in the art will likely realize additional alternatives that are now apparent from disclosure of embodiments of the invention. Accordingly, the scope of the invention should be determined from the following claims and not limited by the above disclosure.

What is claimed is:

1. A freestanding room divider comprising:
  - a plurality of wall panels including a first wall panel, a last wall panel, and at least one intermediate wall panel;
  - a plurality of hinges which connect the first wall panel to an intermediate wall panel, the last wall panel to an intermediate wall panel, and each intermediate wall panel to two of the plurality of wall panels;
  - a separate intermediate glide foot projecting downward from at least some of the plurality of wall panels to support those wall panels on a floor;
  - a first end member having a first vertical post fastened to a vertical edge of the first wall panel, a first transverse base bar welded to a bottom end of the first vertical post and having two ends on opposite sides of the first vertical

- post, and a first pair of end glide feet supporting the first transverse base bar adjacent its two ends; and
- a second end member having a second vertical post fastened to a vertical edge of the second wall panel, a second transverse base bar welded to a bottom end of the second vertical post and having two ends on opposite sides of the second vertical post, and a second pair of end glide feet supporting the second transverse base bar adjacent its two ends.
2. The freestanding room divider as recited in claim 1 wherein the plurality of intermediate glide feet are self-leveling, comprising mechanisms that automatically maintain the plurality of intermediate glide feet in contact with the floor.
3. The freestanding room divider as recited in claim 1 further comprising a separate self-leveling mechanism associated with each of the plurality of intermediate glide feet, each self-leveling mechanism comprising:
- a guide tube attached to one of the plurality of wall panels;
  - a shaft having one end attached to the associated intermediate glide foot and a second end slideably received in the guide tube; and
  - a first spring within the guide tube and biasing the shaft outward from the guide tube.
4. The freestanding room divider as recited in claim 3 wherein each self-leveling mechanism further comprises a second spring biasing the associated intermediate glide foot away from the one of the plurality of wall panels.
5. The freestanding room divider as recited in claim 1 wherein there is an odd number of wall panels, thereby defining a middle wall panel; and a separate intermediate glide foot projects beneath each wall panel other than the middle wall panel.
6. The freestanding room divider as recited in claim 1 wherein:
- the first end member further comprises a first strut connected between one side of the first vertical post and the first transverse base bar, and a second strut connected between another side of the first vertical post and the first transverse base bar; and
  - the second end member further comprises a third strut connected between one side of the second vertical post and the second transverse base bar, and a fourth strut connected between another side of the second vertical post and the second transverse base bar.
7. The freestanding room divider as recited in claim 1 wherein the first vertical post has a channel in which the vertical edge of the first wall panel is received.
8. The freestanding room divider as recited in claim 1 further comprising a first upper gusset connected to an upper section of the first vertical post and engaging the first wall panel; and a second upper gusset connected to an upper section of the second vertical post and engaging the last wall panel.
9. The freestanding room divider as recited in claim 1 further comprising:
- a first lower gusset having a first base plate attached to the first transverse base bar, and having a first panel plate extending from the base plate and attached to the first vertical post; and
  - a second lower gusset having a second base plate attached to the second transverse base bar, and having a second panel plate extending from the second base plate and attached to the second vertical post.
10. The freestanding room divider as recited in claim 9 wherein the first base plate extends under the first wall panel; and the second base plate extends under the last wall panel.
11. The freestanding room divider as recited in claim 1 further comprising a plurality of position control hinges, each connected between two of the plurality of wall panels and having a pair of abutting rough surfaces that resist pivotal motion between those two wall panels.
12. The freestanding room divider as recited in claim 1 further comprising a connector for securing the freestanding room divider to another freestanding room divider.
13. The freestanding room divider as recited in claim 1 wherein each of the first end member and the second end member further comprises a recessed handle.
14. A freestanding room divider comprising:
- a plurality of wall panels including a first wall panel, a last wall panel, and at least one intermediate wall panel;
  - a plurality hinges which connect the first wall panel to an intermediate wall panel, the last wall panel to an intermediate wall panel, and each intermediate wall panel to two of the plurality of wall panels;
  - a plurality of intermediate glide feet projecting downward from beneath at least some of the plurality of wall panels to engage a floor;
  - a first end member having by a first vertical post with a first channel in which is received a vertical edge of the first wall panel, a first transverse base bar welded to a bottom of the first vertical post and having two ends on opposite sides of the first vertical post, a first strut connected between one side of the first vertical post and the first transverse base bar, and a second strut connected between another side of the first vertical post and the first transverse base bar, and a first pair of end glide feet supporting the first transverse base bar adjacent its two ends; and
  - a second end member having by a second vertical post with a second channel in which is received a vertical edge of the second wall panel, a second transverse base bar welded to a bottom of the second vertical post and having two ends on opposite sides of the second vertical post, a third strut connected between one side of the second vertical post and the second transverse base bar, and a fourth strut connected between another side of the second vertical post and the second transverse base bar, and a second pair of end glide feet supporting the second transverse base bar adjacent its two ends.
15. The freestanding room divider as recited in claim 14 wherein the plurality of intermediate glide feet are self-leveling comprising mechanisms that automatically maintains the plurality of intermediate glide feet in contact with the floor.
16. The freestanding room divider as recited in claim 14 further comprising a separate self-leveling mechanism associated with each of the plurality of intermediate glide feet, each self-leveling mechanism comprising:
- a guide tube attached to one of the plurality of wall panels;
  - a shaft having one end attached to the associated intermediate glide foot and a second end slideably received in the guide tube; and
  - a first spring within the guide tube and biasing the shaft outward from the guide tube.

17. The freestanding room divider as recited in claim 16 wherein each self-leveling mechanism further comprises a second spring biasing the associated intermediate glide foot away from the one of the plurality of wall panels.

18. The freestanding room divider as recited in claim 14 further comprising a first upper gusset connected to an upper section of the first vertical post and engaging the first wall panel; and a second upper gusset connected to an upper section of the second vertical post and engaging the last wall panel.

19. The freestanding room divider as recited in claim 14 further comprising:

a first lower gusset having a first base plate attached to the first transverse base bar, and having a first panel plate extending from the base plate and attached to the first vertical post; and

a second lower gusset having a second base plate attached to the second transverse base bar, and having a second panel plate extending from the second base plate and attached to the second vertical post.

20. The freestanding room divider as recited in claim 19 wherein the first base plate extends under the first wall panel; and the second base plate extends under the last wall panel.

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