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(54) **PANELING SYSTEM AND METHOD OF
INSTALLING**

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52/582.1; 52/582.2**

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(57) **ABSTRACT**

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Asystem and method of fixing a frame to a panel, that allows panels or the like to be attached to a frame and removed quickly and easily without damage to the panels, frames or their surroundings. Generally, the invention provides for a first article and a second article. The first article may have an aperture and the second article may have a groove or indentation. A first end of a connecting means may be placed in the aperture of the first article and a second end of a connecting means may be placed in the receptacle of a second article such that the forces between the receptacle and the connecting means anchor or secure the first article to the second article. The connecting means may also allow for sliding in a horizontal or vertical direction. However, the first article and second article may also be locked into place. The present invention also provides a method for the easy adjustment, hanging and replacement of paneling systems.

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E04B 2/00; E04B 1/61; E04C 2/34**

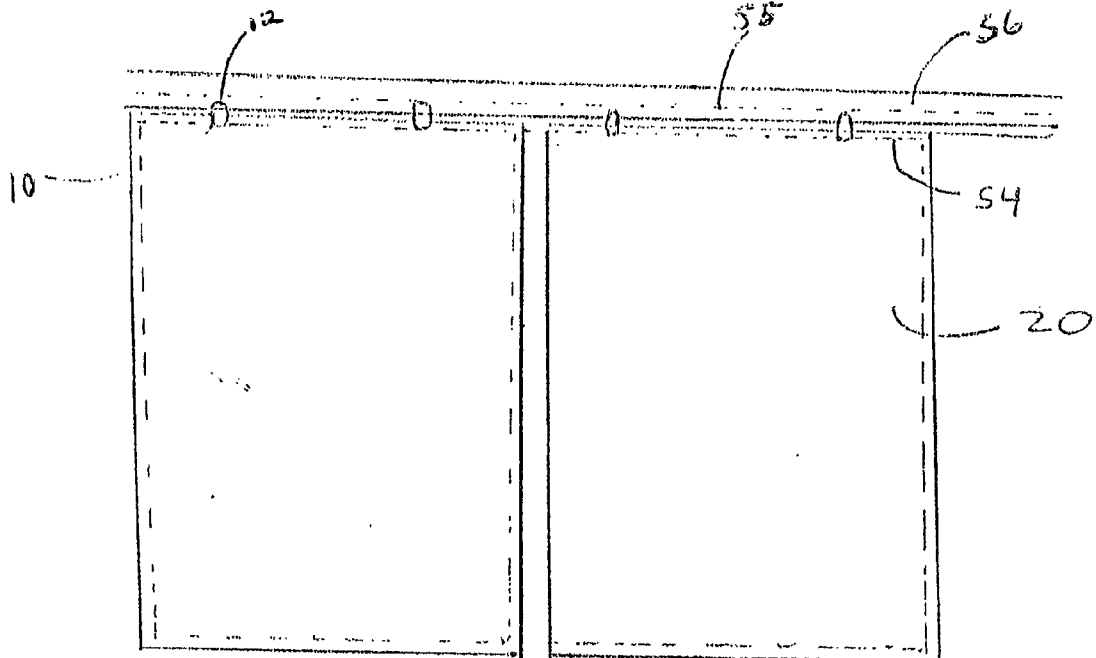


Fig 1.

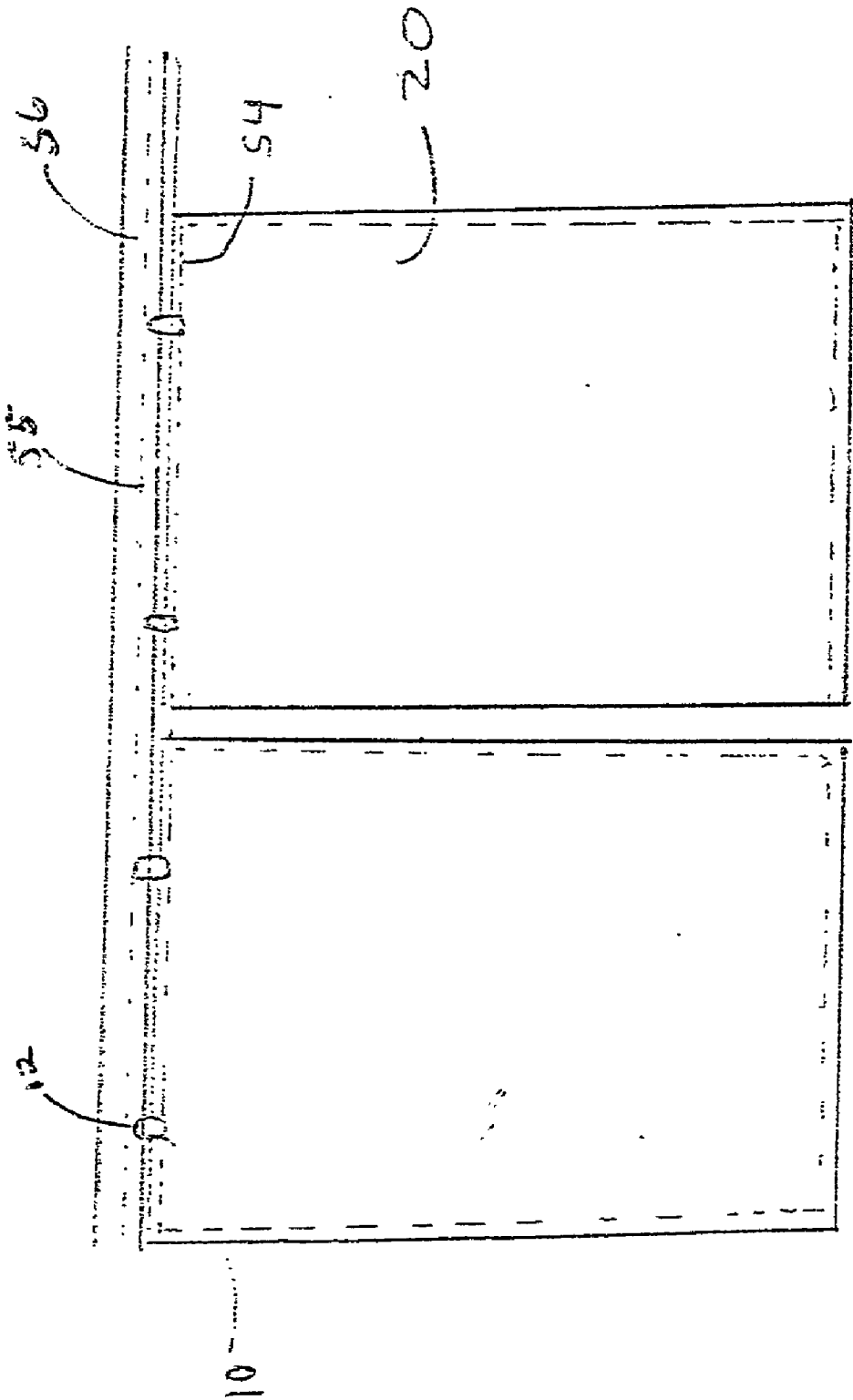


Fig 2.

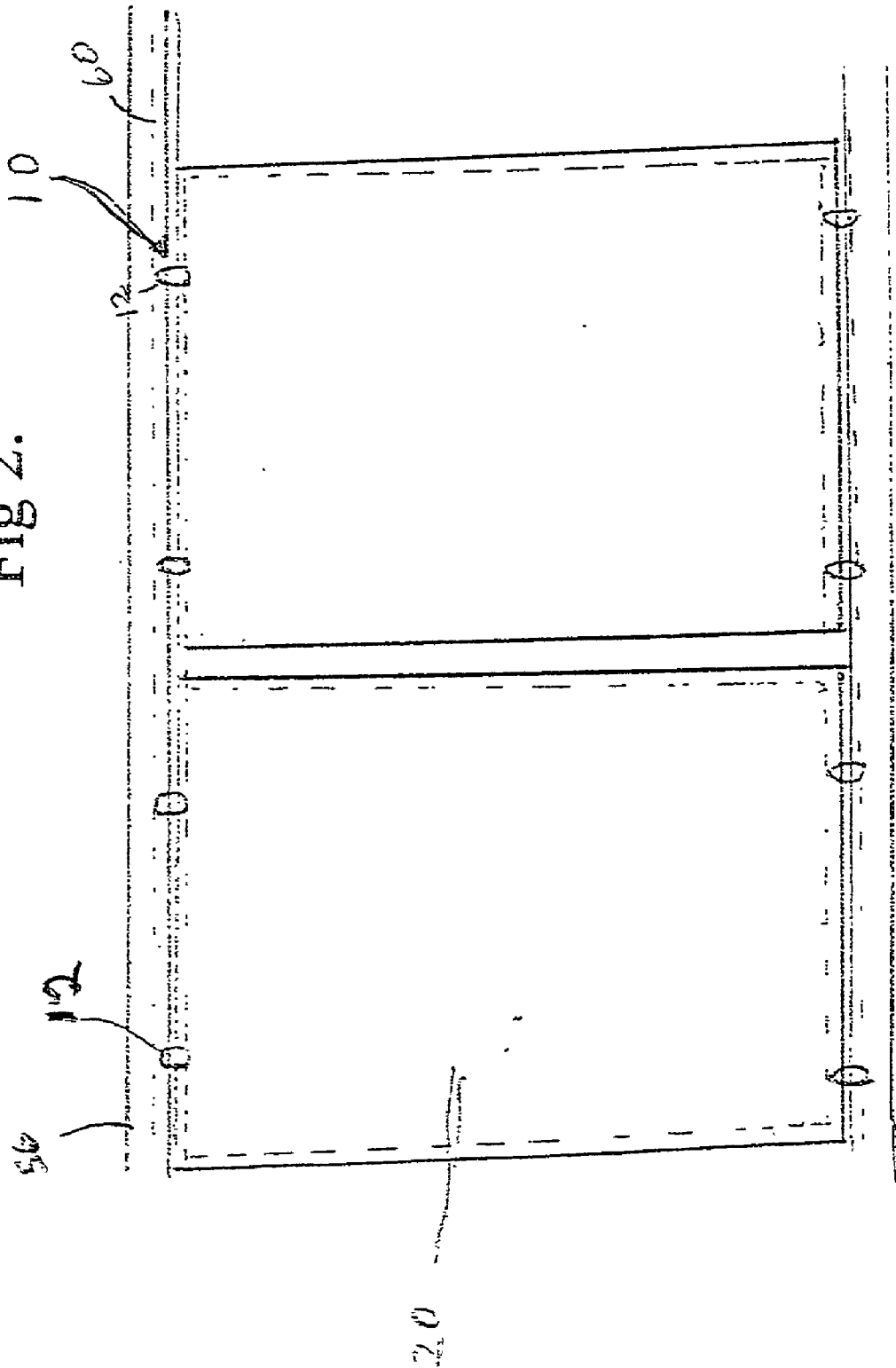


Fig 3.

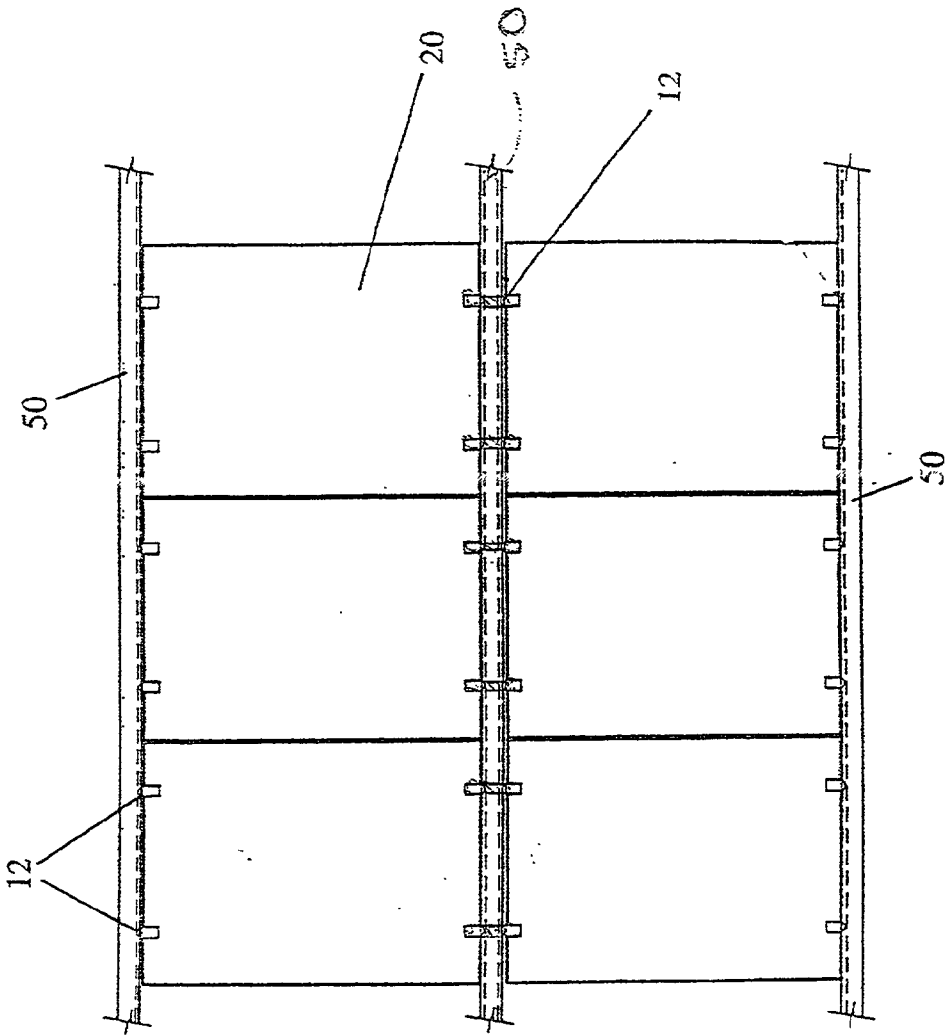


Fig 4.

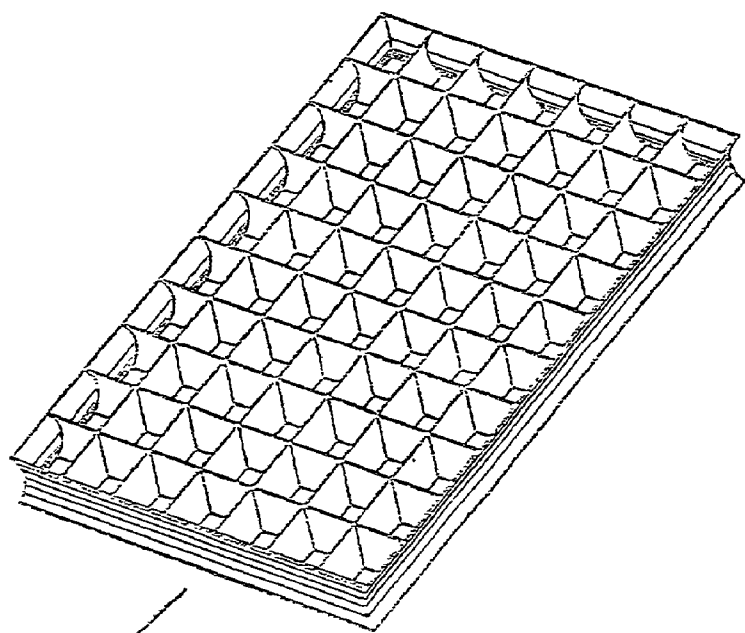
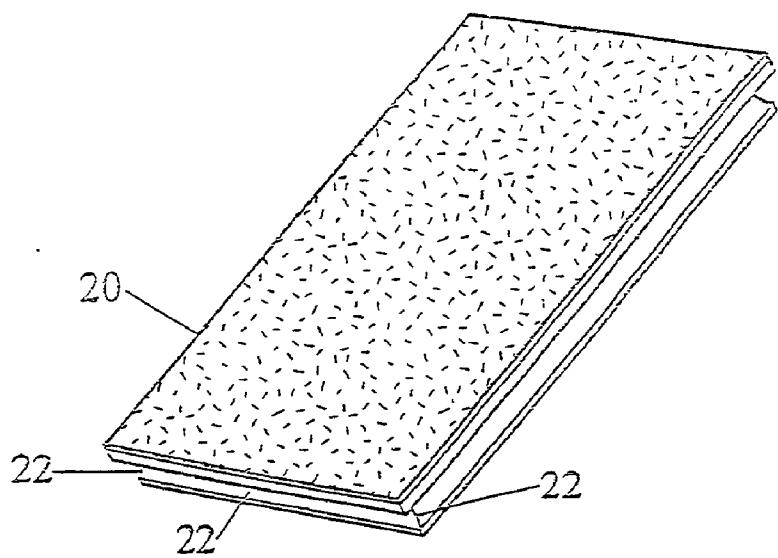


Fig 5.

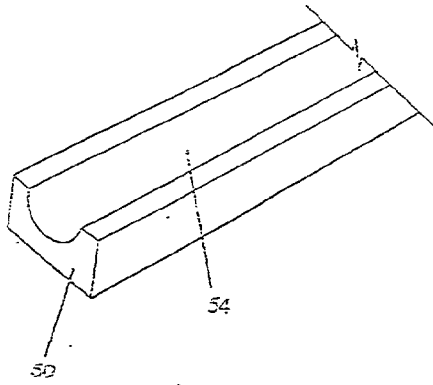


FIG. 6A

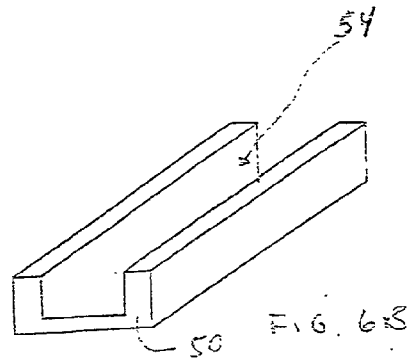


FIG. 6B

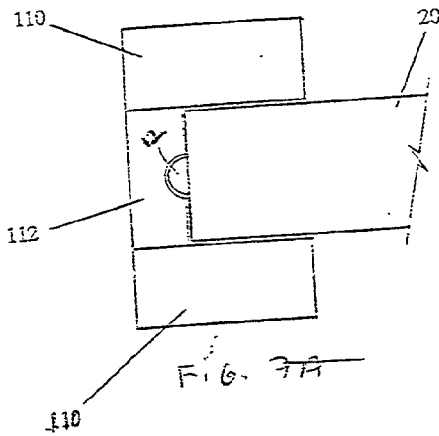


FIG. 7A

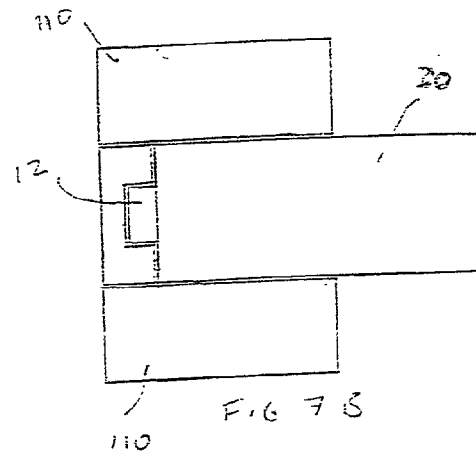


FIG. 7B

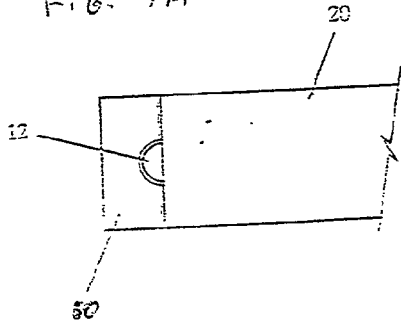


FIG. 8A

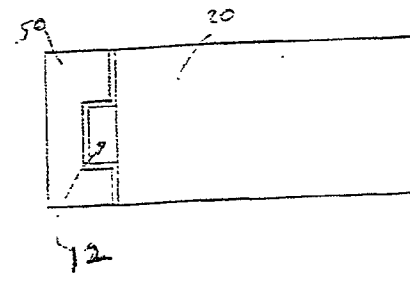


FIG. 8B

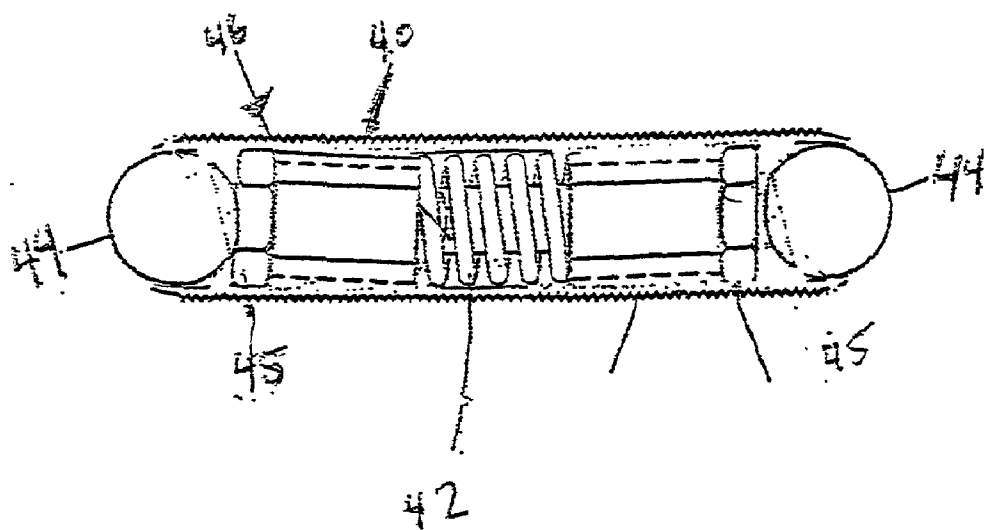


Fig 9.

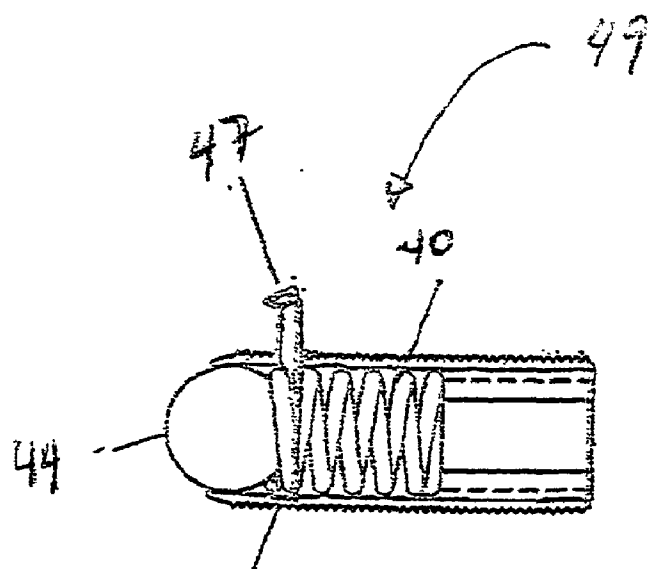


Fig 10.

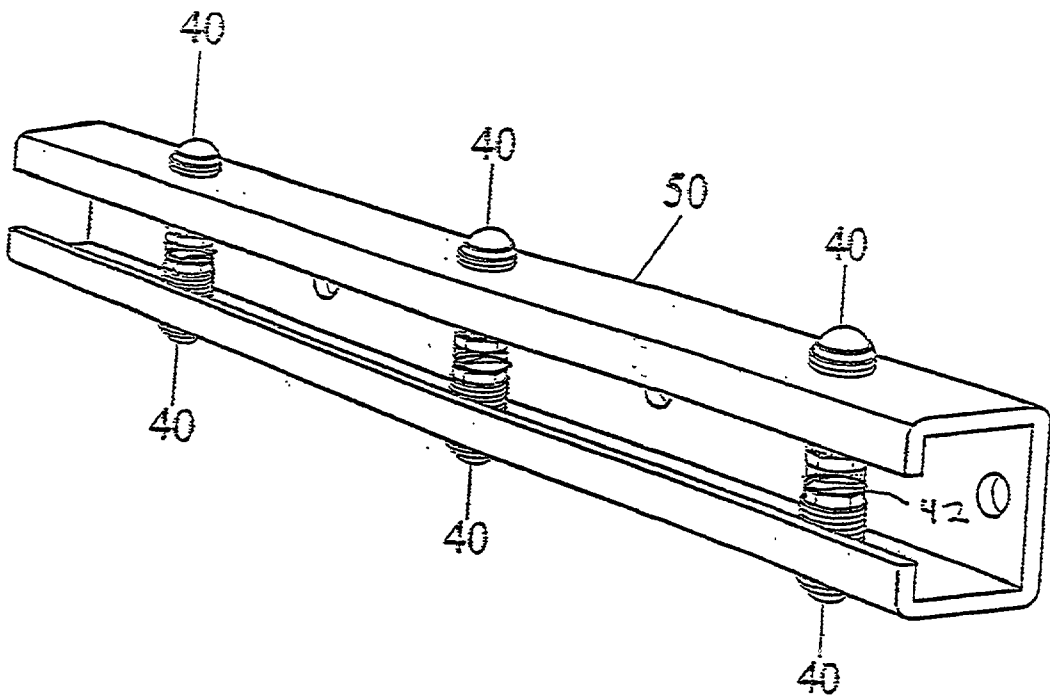


Fig 11.

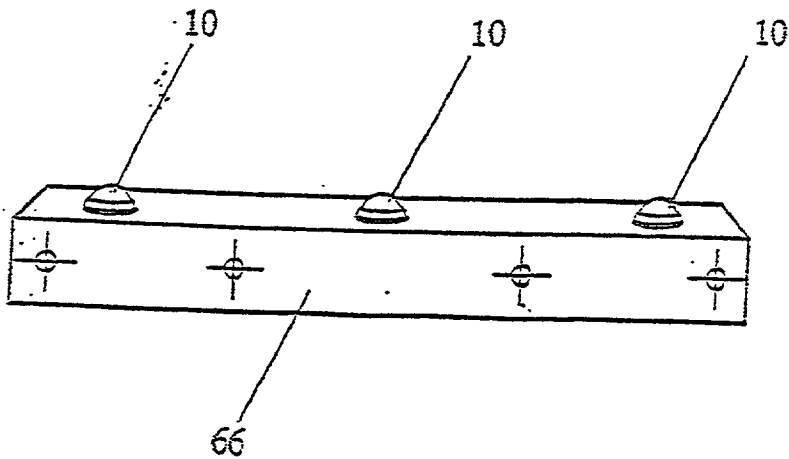


Fig 12

PANELING SYSTEM AND METHOD OF INSTALLING

BACKGROUND OF THE INVENTION

[0001] The present invention generally relates to a system and method for fixing panels. Particularly, the present invention provides for a system that allows for the easy attachment and anchoring of a first article to a second article such as a panel to a frame. Such a system allows for the easy installation and removal of such articles without damage. Further, the present invention allows for panels to be properly hung, by providing adjustable panels that may be locked.

[0002] Panels, such as those used to construct walls and fences, have been fixed to frames or supports by a variety of different mechanisms. Typically, these involve fixing the panels by nails, pins, screws, bolts or glue. The known methods of fixing panels have the drawback that they can damage the panel, i.e. with a hole or glue. Further, it can be difficult to remove the panel without damaging the panel, or without undoing screws or trying to remove nails. Screws or nails also leave holes in the panels that can be detrimental to the appearance of the panel.

[0003] Present systems and apparatus also suffer significant disadvantages in that they do not allow for the easy change of panels according to the preference of the owner. By way of example, it would be desirable to achieve a standard system of paneling according to the tastes of the owner that may be easily attached and removed without significant difficulty. For instance, the owner of paneling may choose to have one appearance for business purposes and another for a personal space. Where a quick installation in order to change the use of a space is desired, there is a need for a set of paneling that allows for such quick, yet sturdy installation. Further, panels can be hung improperly and need to be readjusted. This can be complex when items are glued or screwed together. Accordingly, a sturdy, easy to move, remove, replace, and change paneling system and method is needed.

SUMMARY OF THE INVENTION

[0004] The present invention is directed to a system and method for attaching or fixing panels. Particularly, the present invention provides for a system that allows for the easy attachment and anchoring of a first article to a second article such as a panel to a frame. Such a system allows for the easy installation and removal of such articles without damage. Further, a system and method for the installation of panels is provided that allows the position of the panels to be adjusted easily so that the paneling may hang properly and locked into place when the proper position is achieved.

[0005] One aspect of the invention is a system for removably attaching and adjusting a first article to a second article comprising a first article with a connecting means secured within an aperture, a second article with a receptacle adapted to receive a portion of the connecting means. The first article may be supported solely by the connecting means and the receptacle such as to allow movement of the first article within the receptacle and removal of the first article without effecting the first article, second article or the connecting means.

[0006] According to another aspect of the present invention, a system for removably attaching at least one panel to at least one frame is disclosed which may have at least one double sided connecting means. The double sided connecting means may further comprise a locking means to effectuate a locked connection. At least one frame with an aperture may be adapted to receive a first end of at least one double sided connecting means. The may also be at least one panel with a receptacle adapted to receive a second end of at least one double sided connecting means. The panels may be supported by the at least one frame and at least one double sided connecting means such as to allow removal and adjustment of the panels without effecting the frames, panels or double sided connecting means.

[0007] According to a further aspect of the present invention, a system for removably attaching a multitude of panels to at least one frame is disclosed comprising at least one frame with a double sided connecting means. The double sided connecting means has at least one spherical projection biased to an extended position. A multitude of panels with an elongate groove receptacle are adapted to receive the at least one spherical projection. There may also be at least one support abutting a portion of the system. A helical spring locking means may be utilized to effectuate a locked connection between the at least one frame and at least one panel. The frames are supported by at least one spherical projection and the receptacle such as to allow movement of the frames relative to the panel. The helical spring locking means allows for the frames to be secured in place relative to the panels. The panels may be removed without effecting the frames or panels.

[0008] According to another aspect of the present invention, a method of removably attaching at a first article to a second article is disclosed comprising inserting a first end of a connecting means into an in aperture in a first article, inserting a second end of a connecting means into a receptacle in a second article, adjusting the position of the first article relative to the second article and effectuating a locked connection between the first article and the second article. The first article may be supported by pressure between the connecting means and the receptacle such as to allow movement of the first article relative to the second article along the receptacle and to allow removal of the first article without effecting the first article, the second article or the connecting means.

[0009] These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a front view a frame and panel fixed together according to the present invention;

[0011] FIG. 2 is a front view of another embodiment of a frame and panel together according to the present invention;

[0012] FIG. 3 is a front view of yet another embodiment according to the present invention;

[0013] FIG. 4 is a perspective view of a panel of the type that may be used according to the present invention;

[0014] FIG. 5 is a perspective view of a panel that may be used according to the present invention;

[0015] FIGS. 6A and 6B are perspective views of frames that may be used according to the present invention;

[0016] FIGS. 7A and 7B are partial cross sections of a frame and panel according to an embodiment of the present invention;

[0017] FIGS. 8A and 8B are partial cross sections of a frame and panel according to an embodiment of the present invention;

[0018] FIG. 9 is a side view of a double sided connecting means according to the present invention;

[0019] FIG. 10 is a side view of a self-locking connecting means according to the present invention;

[0020] FIG. 11 is perspective view of a double sided connecting means attached to a frame;

[0021] FIG. 12 is a side view of a multitude of connecting means attached to an article; and

[0022] FIG. 13 is a perspective view of a connecting means attached to an article.

DETAILED DESCRIPTION OF THE INVENTION

[0023] The following detailed description is of the best currently contemplated modes of carrying out the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

[0024] The present invention provides a system for fixing panels that allows panels or the like to be removed quickly and easily without damage to the panels, frames or their surroundings. Generally, the invention provides for a first article and a second article. A connecting means may be used and may be in contact with an aperture and a receptacle or indentation in both the first article and the second article, such that the forces between the indentation and a projection of the connecting means anchor or secure the first article to the second article. The projection may also allow for sliding in a horizontal or vertical direction. This may be desirable to properly "hang" the paneling such that a multitude of parts properly line up.

[0025] FIG. 1 depicts a system according to a preferred embodiment of the present invention. As shown, the connecting means 10 may have a projection 12. This projection may be a spherical ball. The connecting means 10 may be adapted to fit into an aperture or alternatively a receptacle in a first article 56. The first article 56 may be a frame, as shown. However, it should be understood that the connecting means 10 may be in either the first or second article. The second article 20 as shown may be paneling. As shown, the first article 56 may have an indenture 55. The projection 12 extends into the indenture 55 and provides pressure so as to secure the first article 56 to the second article 20. These may be locked into place by the use of a locking means, or left to freely slide in a horizontal motion. As with all the embodiments disclosed herein there may be any number of projections. However, it may be preferable to have at least two connecting means to provide a sturdy support for the first article to the second article.

[0026] FIG. 2 depicts a system according to a preferred embodiment of the present invention. As shown, the connecting means 10 may have a projection 12 which is sized to fit into an indenture or receptacle 60. This projection may be a spherical ball. The connecting means 10 may be adapted to fit into an aperture in a second article 20. The connecting means 10 may also be adapted to fit into the second article 20 by way of a receptacle 60 or indenture. The first article 56 may be a frame, as shown. The second article 20 as shown may be a panel. There may also be a number of frames and a number of panels. Also, it may only be necessary to have one end of the connecting means 10 be able to freely move. By way of example, the connecting means 10 may be a connecting means 10 and it may be desirable to insert a first end of the connecting means 10 into a receptacle 60 in the frame 56 and lock the connecting means 10 such that the connecting means 10 does not move in the frame 56. The other end may be left unlocked and allow the panel 20 to freely move while adjusting the placement of the panel 20. Upon finding the desired position of the panel 20, the connecting means 10 may be locked or secured into place. However, it should be understood that it is intended that the present invention may be utilized in order to provide for a set of paneling that may be installed to slide vertically, diagonally, forward, backward, any desired direction without limitation.

[0027] Also, disclosed is a method of removably attaching at a first article to a second article. This method comprises inserting a first end of a connecting means into an aperture in a first article, inserting a second end of a connecting means into a receptacle in a second article. The position of the first article may be adjusted relative to the second article and a locked connection effectuated between the first article and the second article. The connecting means may be a double sided connecting means and it may also be a self-locking connecting means. However, it is essential that the connecting means be capable of freely moving in a direction along the first or the second article, such as a receptacle or indentation, yet also be capable of being secured in place upon finding a desirable position. The first article is supported by pressure between the connecting means and the receptacle such as to allow movement of the first article relative to the second article along the receptacle and to allow removal of the first article without effecting the at second article or the connecting means. It should be understood that it is a purpose of the present invention to provide a system, wherein a connecting means may be freely movable along both the first article and the second article until locked into place. It should also be understood that the first article and the second article may be a panel or a frame. It makes no difference whether the first article is a frame or panel, but rather that there is a frame and a panel. Also, it is intended that the connecting means may be secured in an aperture in either the first article or second article. Also, the connecting means may utilize a projection receives within a receptacle which is capable of movement along the receptacle. The connecting means may be double sided, which is to say that both ends have projections which are received within a receptacle. There are a number of variations that are intended to be included within the present invention, including a frame with one end of a connecting means contained within an aperture, a panel with one end of a connecting means contained within an aperture, a frame with a receptacle for receiving a projection, a panel with a receptacle for

receiving a projection and any combinations thereof. Any of these combinations may also include locking means.

[0028] As shown in **FIG. 3**, the present invention may be used with a multitude of first articles and second articles. As shown, a number of connecting means **12** may be attached to a number of first articles **20** to comprise a facade of paneling. As shown, there are six first articles **20**, which may be removably attached to three second articles **50**. This is without limitation, as any number of first articles and second articles may be attached as envisioned in the present invention.

[0029] As shown in **FIG. 4**, the first article may have grooves or indentations **22** around the edge of the first article **20**, which in this case is a panel. These indentations **22** serve to receive the projection as described previously.

[0030] As shown in **FIG. 5**, the panel **200** may be any design or type of paneling. This may include metal panels, wood panels, exterior insulated panels, stone, pre-cast concrete, masonry, porcelain panels, meshes, fences, wall tile and any other type of paneling known within the art.

[0031] As shown in **FIGS. 6A and 6B**, the frame **50** which may be the first or second article may also have a receptacle **54** to receive one end of the connecting means. It should also be understood that the receptacle may be rounded or angular.

[0032] **FIGS. 7A and 7B** depicts the connection between a first article **20** and second article **112**. As shown, the first article **20** has a projection **12**, which extends into an indentation in second article **112**. The first article **20** as shown is the panel and the second article **112** is the frame. There may also be supports **110** on either side of the first article **20** and the second article **112**.

[0033] **FIGS. 8A and 8B** depict a connection between a first article **20** and a second article **50** without any added support. As shown, the first article **20** is a panel and the second article **50** is a frame. The projection **12** extends into an indentation or receptacle in the second article **50**. The projection **12** may be a portion of a double sided connecting means or a self-locking connecting means.

[0034] **FIG. 9** depicts a double sided connecting means **46** with a projection **44** at each end. The projection **44** as shown is a spherical ball. There may be a helical spring **46** contained within a body **40**. A nut **45** may act as a locking means to secure the first or second article so that it may not freely move. The double sided connecting means **46** may have a first end placed within an aperture, and a second end placed in a receptacle in the first article or second article as discussed infra. Also, as shown there may be ridges along the body of the double sided connecting means **46** to further contain it within an aperture of an article such as a frame or panel.

[0035] **FIG. 10** depicts a self-locking connecting means **49** with a projection **44** at one end. It should be understood that this may too be double sided. However, the purpose is to show an embodiment of a self-locking connecting means. The spherical ball **44** would allow for a first article to slide within a receptacle of a second article. The helical spring **40** allows for added movement and flexibility of the first article and the second article. The first article would move until the pin **47** catches a hole in the second article. Upon catching,

the first article would be removably attached to the second article. As such, a self-locking connecting means in disclosed.

[0036] **FIG. 11** depicts a double sided frame embodiment that may be utilized to attach a number of panels along a single frame **50**. As shown, a U shaped frame may accommodate a number of double sided connecting means **40**. This would allow a system such as that depicted in **FIG. 3** to be easily installed.

[0037] **FIG. 12** depicts yet another embodiment according to the present invention. As shown, a piece **66** may be attached to the back of a first article or panel (not shown) in order to attach the panel to a frame as in any of the ways described herein. This is intended to depict that the present invention may be utilized as an add on part that is a number of connecting means which are securely attached to a piece, which is then in turn attached to a first or second article.

[0038] It should be understood, of course, that the foregoing relates to preferred embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

We claim:

1. A system for removably attaching and adjusting a first article to a second article comprising;

a first article with a connecting means with a first end secured within an aperture and a second end that is a projection;

a second article with a receptacle adapted to receive said projection;

wherein said first article is supported solely by said projection and said receptacle such as to allow movement of said first article within said receptacle and removal of said first article without effecting said first article, said second article or said connecting means.

2. A system as in claim 1, wherein said first article is either a panel or a frame.

3. A system as in claim 1, wherein said second article is either a panel or a frame.

4. A system as in claim 1, further comprising at least one support along said first article.

5. A system as in claim 1, further comprising at least one support along said second article.

6. A system as in claim 1, wherein said connecting means further comprises an automatic locking means to effectuate a locked connection between said first panel and said second panel.

7. A system as in claim 6, wherein said automatic locking means is a helical spring with a pin.

8. The system as in claim 1, wherein said receptacle is an elongate groove.

9. The system as in claim 1, wherein said projection is spherical in shape.

10. The system as in claim 1, wherein said connecting means has at least one end that is cylindrical in shape.

11. A system for removably attaching at least one panel to at least one frame comprising;

at least one double sided connecting means, wherein said double sided connecting means further comprises a locking means to effectuate a locked connection;

at least one frame with an aperture adapted to receive a first end of said at least one double sided connecting means;

at least one panel with a receptacle adapted to receive a second end of said at least one double sided connecting means; and

wherein said at least one panel is supported by said at least one frame and said at least one double sided connecting means such as to allow removal and adjustment of said at least one panel without effecting said at least one frame or said at least one panels and said at least one panels may move along the receptacle unless said at least one double sided connecting means is locked.

12. A system as in claim 11, further comprising at least one support abutting said at least one panel.

13. A system as in claim 11, further comprising at least one support abutting said at least one frame.

14. A system as in claim 11, wherein said locking means is comprised of a helical spring and a nut.

15. The system as in claim 11, wherein said receptacle is an elongate groove.

16. The system as in claim 11, wherein said double sided connecting means has at least one end which is spherical in shape and at least one pin attached to said at least one end which is spherical in shape, such as to effectuate an automatically locking connecting means.

17. The system as in claim 11, wherein said double sided connecting means is cylindrical in shape.

18. A system for removably attaching a multitude of panels to at least one frame comprising;

at least one frame with a double sided connecting means contained within an aperture, wherein said double sided connecting means has at least one spherical projection biased to an extended position;

a multitude of panels with an elongate groove receptacle adapted to receive said at least one spherical projection;

at least one support abutting a portion of said system;

a helical spring locking means to effectuate a locked connection between said at least one frame and said at least one panel;

wherein said at least one frame article is supported by said at least one spherical projection and said receptacle such as to allow movement of said at least one frame article relative to said at least one panel, said helical spring locking means allows for said at least one frame article to be secured in place relative to said at least one panel and said multitude of panels may be removed without effecting said at least one frame or multitude of panels.

19. A method of removably attaching at a first article to a second article comprising;

inserting a first end of a connecting means into an aperture in a first article;

inserting a second end of a connecting means into a receptacle in a second article;

adjusting the position of said first article relative to said second article; and

effectuating a locked connection between said at first article and said second article, wherein said first article is supported by said connecting means and said receptacle such as to allow movement of said first article relative to said second article along said receptacle and to allow removal of said first article without effecting said first article, said second article or said connecting means.

* * * * *