

- [54] **BUILDING WALL PANEL LEVELER DEVICE**
- [75] Inventor: **Camiel R. De Schutter**, St. Clair Shores, Mich.
- [73] Assignee: **Perfect Module Systems, Inc.**, St. Clair Shores, Mich.
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Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 91,083, Nov. 19, 1970, Pat. No. 3,805,471.
- [52] U.S. Cl. 52/122; 52/127; 52/242
- [51] Int. Cl. E04b 2/74
- [58] Field of Search 52/122, 127, 143, 632, 52/242, 111

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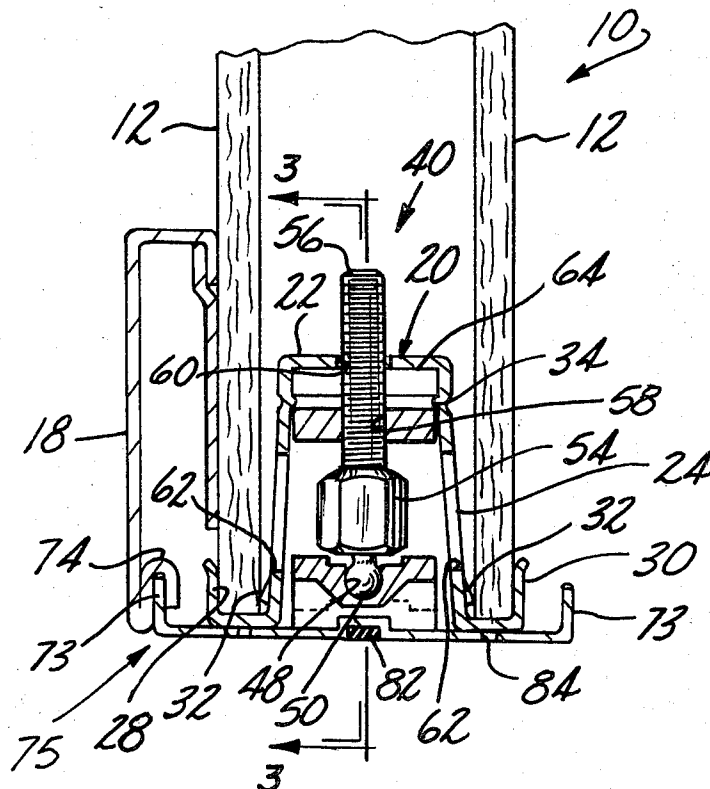
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Primary Examiner—John E. Murtagh
 Attorney, Agent, or Firm—Basile & Weintraub

[57] **ABSTRACT**

A leveler device for use within a building wall panel and comprising a pair of horizontally disposed and vertically spaced support plates, the lower support plate of which has its bottom surface abutting the floor on which the wall panel is disposed. The lower support plate has a central spherically shaped cavity within which is disposed a spherical end of a connecting member to form a universal joint therebetween. The connecting member is provided with an upper threaded portion adapted to threadedly engage an aperture in the upper support plate so that the upper and lower support plates may be moved toward and away from each other by rotation of the connecting member. A housing having an upper surface with downwardly depending side walls is disposed within the wall panel at a predetermined location. The support plates are disposed between the opposing inner side walls of the housing and are restrained from rotational movement thereby. The upper surface of the upper support plate is in abutment with the top wall of the housing such that the wall panel may be raised and lowered by means of the connecting member while the universal joint between the connecting member and the lower support plate permits the upper support plate to pivot with respect to the floor to provide a proper leveling of the wall panel.

2 Claims, 6 Drawing Figures



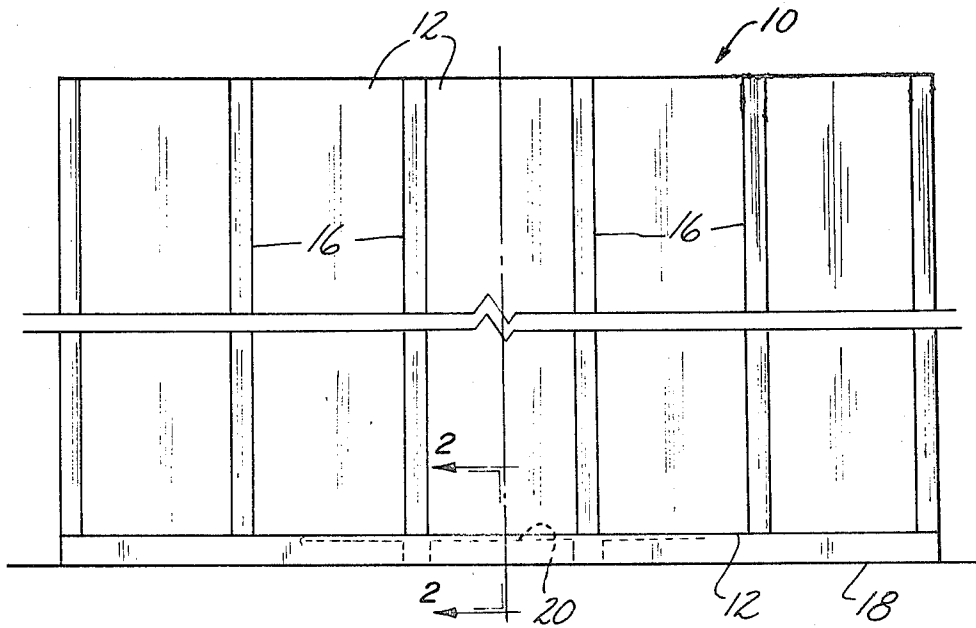


Fig-1

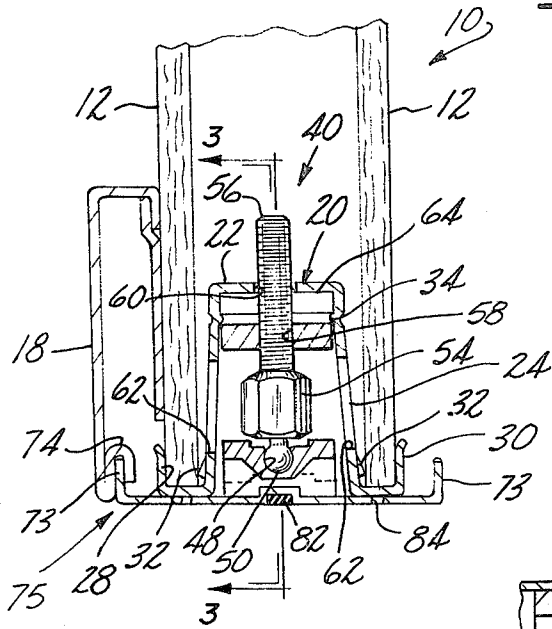


Fig-2

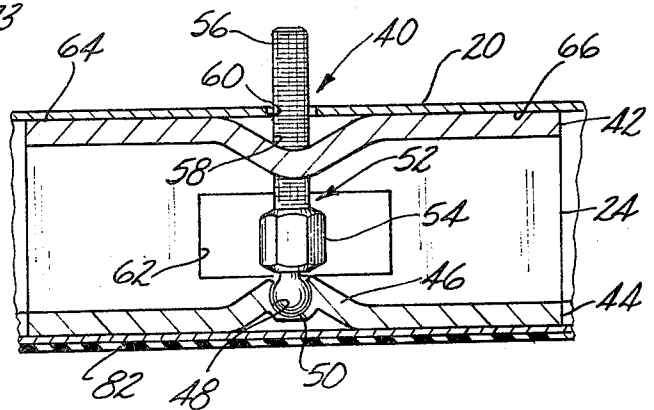


Fig-3

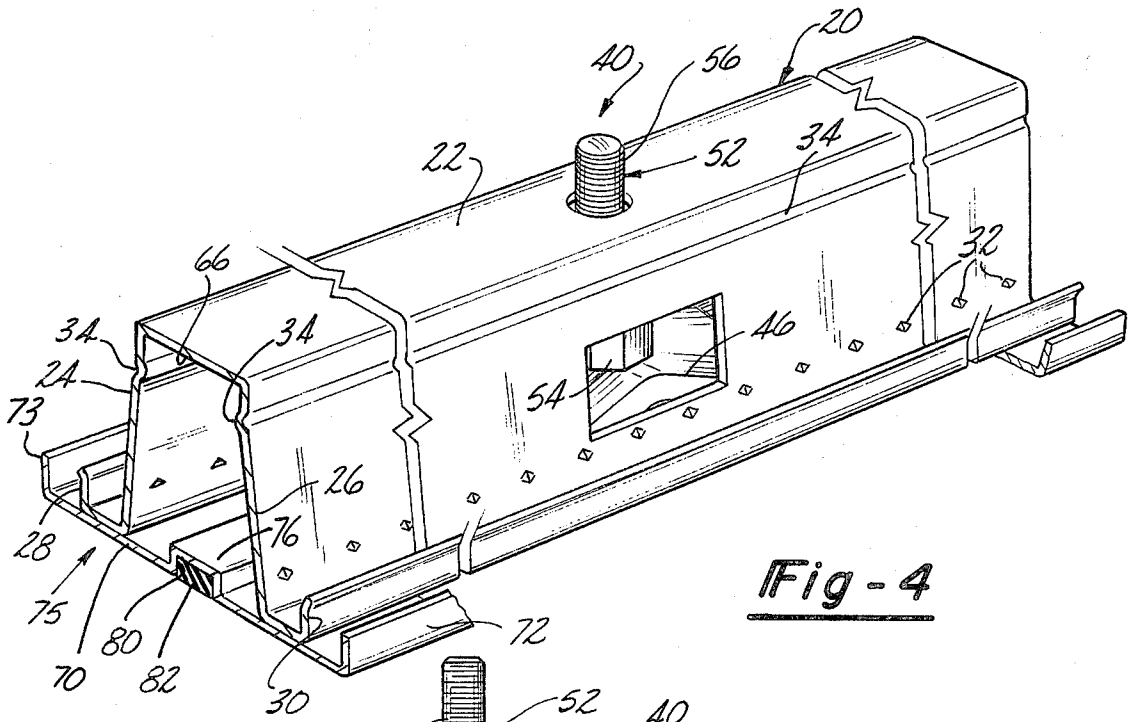


Fig - 4

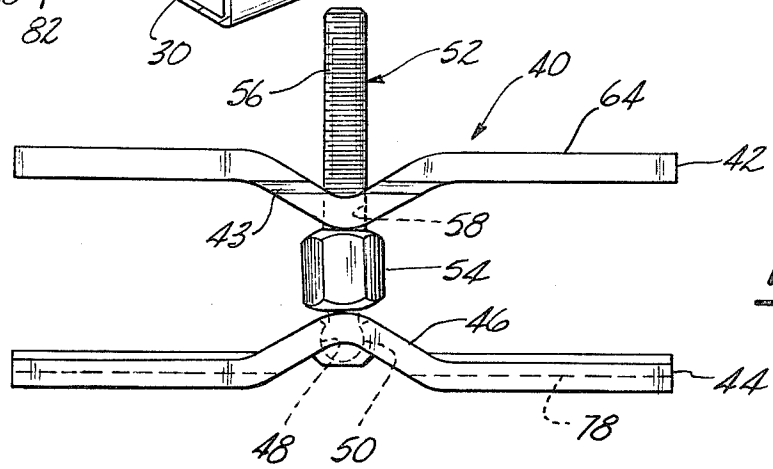


Fig - 5

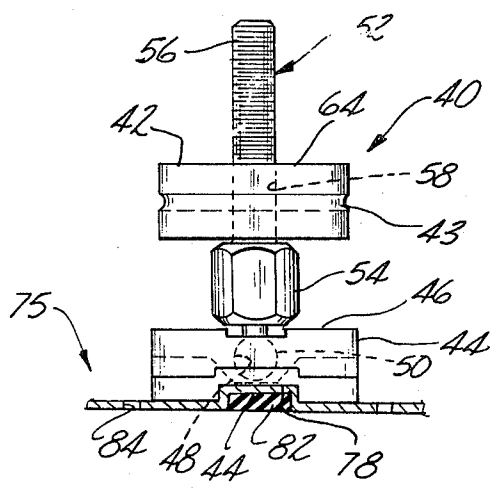


Fig - 6

BUILDING WALL PANEL LEVELER DEVICE
CROSS REFERENCE TO RELATED PATENT
APPLICATIONS

The present invention is a continuation-in-part of copending U.S. patent application Ser. No. 91,083 filed Nov. 19, 1970, now U.S. Pat. No. 3,805,471, for "Building Panel Construction System" in the name of Camiel R. De Schutter.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to building wall panels and wall construction systems and, in particular, to a leveler device for use within such wall panels.

2. Description of the Prior Art

Although numerous devices and apparatus have been heretofore constructed and utilized for leveling articles, to the knowledge of the inventor there exists no such leveler device for use in conjunction with building wall panel systems of the type disclosed herein.

SUMMARY OF THE INVENTION

The present invention which will be described subsequently in greater detail comprises a leveler device having a pair of support plates mounted in a spaced vertical relationship with the upper support plate being pivotable with respect to the lower support plate and having means interconnecting the support plates such that the same may be raised and lowered with respect to each other. Housing means enclosing the leveler device within a wall panel in such a manner that the raising and lowering of the support plates with respect to each other results in the raising and lowering of the wall panel.

It is therefore a primary object of the present invention to provide a new and improved wall panel leveler device.

It is a further object of the present invention to provide a leveler device which is extremely simple in its construction and design, and thus inexpensive to manufacture and simple to use in conjunction with a wall panel in order to properly orient the same.

Other objects, advantages and applications of the present invention will become apparent to those skilled in the art of building wall panel construction and systems and, in particular, leveler devices when the accompanying description of a preferred embodiment of the present invention is read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The description herein makes reference to the accompanying drawings wherein like reference numerals refer to like parts throughout the several views, and in which:

FIG. 1 is a plan elevational view of a building wall panel having a leveler device constructed in accordance with the principles of the present invention;

FIG. 2 is a fragmentary enlarged cross-sectional view showing the leveler device used in the wall panel and taken along line 2-2 of FIG. 1;

FIG. 3 is a fragmentary cross-sectional view of the leveler device taken along line 3-3 of FIG. 2;

FIG. 4 is a fragmentary perspective view of the leveler device and the housing therefor illustrated in FIG. 2;

FIG. 5 is a plan elevational view of the leveler device illustrated in FIG. 2; and

FIG. 6 is a side-elevational view of the leveler device illustrated in FIG. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and, in particular, to FIGS. 1 and 2 wherein there is illustrated a building wall panel 10 comprising a plurality of outer panel sections 12 separated by panel section joints 16. Along the bottom of the panel wall 10 there is provided a wall base section 18. Within the interior of the wall panel 10 along the bottom edge thereof and extending between the panel section joints 16 there are provided a plurality of panel spacers 20 that are slidably carried on a plurality of longitudinally aligned track members 75 in a manner to be hereinafter described in greater detail. The various aforementioned components of the building wall panel 10 are assembled in a prearranged manner and their specific construction and manner of assembly are described in greater detail in the aforementioned co-pending patent application and a further detailed description of the same is not necessary for purposes of understanding the present invention.

Each track member 72 comprises a base portion 70 having a central longitudinally extending elevated section defining a leveler support surface 76 that slidably supports a leveler device 40. The lower side of the elevated section defines a recess 80 within which is disposed a gasket 82 having an adhesive on the bottom surface thereof. When the wall panel 10 is being assembled, the track member 75 is positioned on the desired location of a floor and the adhesive carried by the gasket 82 secures the track member 75 to the floor. It should be understood that other fastening means may be employed within the recess 80 to secure the track member 75 to the floor. In addition the track member 75 is provided with a plurality of longitudinally spaced apertures 84 on opposite sides of the elevated section and through which suitable fastening screws may pass for engagement with the floor so as to secure the track member 75 at the desired location. The opposite longitudinal sides of the track member 75 terminate in up-standing bent ends 73 that are engaged by U-shaped slots 74 carried by the inner wall of the base section 18 so as to secure the base section 18 to the track member 75.

As can best be seen in FIG. 4, the panel spacer 20 has a U-shaped cross section and comprises a top wall 22 and two downwardly depending side walls 24 and 26 each of which has double right angled bends forming panel retention means 28 and 30 respectively. The side walls 24 and 26 are provided on the lower sides thereof and opposite the retention means 28 and 30 with evenly spaced lances 32 and longitudinal retention means 28 and 30 in conjunction with the lances 32 function as a retention means for the panel section 12 inserted thereinbetween as can best be seen in FIG. 2. The side walls 24 and 26 are further provided with longitudinally extending, inwardly directed ribs 34 for a purpose to be described hereinafter.

FIGS. 5 and 6 illustrate a preferred embodiment of the present invention in the form of the wall panel leveler device 40 which comprises upper and lower support plates 42 and 44, respectively, and which have generally the same length, width and thickness. The

lower support plate 44 has a longitudinal recess 78 which receives the elevated portion of the track member 75 such that the leveler device 40 is slidably supported on the support surface 76 and movable along the entire length thereof. The lower support plate 44 also has an elevated central portion 46 which is formed with a spherical cavity 48 within which the spherical head 50 of the connecting member 52 is swaged. Connecting member 52 has above the spherical head 50 a hexagonal head 54 which is adapted to be engaged by a wrench or the like for a purpose to be described. Above the head 54 there is provided a threaded stem 56 which threadedly engages a threaded aperture 58 in the central portion of the upper support plate 42.

The central portion of the upper support plate 42 also has on opposite sides thereof notches 43 which engage the spacer ribs 34 in a snap lock relationship when the spacer 20 is positioned on the leveler device as illustrated in FIGS. 2 through 4.

As can best be seen in FIGS. 3 and 4, the panel spacer 20 is provided in its upper surface 22 with an enlarged aperture 60 and when the wall panel 10 is constructed, the panel spacer 20 is prepositioned such that the aperture 60 is at the center of the wall panel 10 and thus providing an automatic prepositioning of the leveler device 40 as will be described. It should also be noted that each of the side walls 24 and 26 is provided with a rectangular slot 62 for a purpose which will also be described hereinafter.

The leveler device 40 is positioned within the interior of the panel spacer 20 such that the longitudinal axes of the support plates 42 and 44 parallel the longitudinal axis of the wall panel 10 and the upper surface 64 of the upper support plate 42 is in abutment with the bottom surface 66 of the upper wall 22 of the panel spacer 20. As aforementioned, the ribs 34 carried by the side walls 24 and 26 are engaged with the notches 43 to secure the spacer 20 to the leveler device 40. At the same time, the lower support plate 44 is carried by the support surface 72 of the track member 75. The upper end of the threaded stem 56 projects through the aperture 60 thereby automatically positioning the leveler device 40 at the center of the wall panel 10. When the panel has been assembled and with the wall base 18 removed, a suitable wrench may be inserted between the bottom edge of the wall panel space 20 and the floor line to engage the nut-like head 54 of a connecting member 52. By rotating the nut head 54, the relative rotational movement between the threaded surface of the stem 56 and the threaded aperture 58 of the upper support plate 42 results in the raising of the upper support plate 64 and thus the panel spacer 20 and the entire wall panel 10 to the desired height. At the same time rotation of the nut head 54 in the opposite direction lowers the wall panel 10. When the panel spacer 20 is too low (as illustrated) to facilitate access to the head 54 from between the floor line and the bottom edge of the spacer 20, the wrench may be used to engage the head 54 by inserting the wrench through the panel slot 62. The universal connection created by this spherical head 50 and the spherical cavity 48 permits the entire assembly to tilt in the desired direction that is toward or away from the opposite ends of the lower support plate 44 whereby the combination of the tilting of the wall panel 10 and the raising and lowering of the same as aforementioned results in obtaining a proper orientation or leveling of the entire wall panel 10. The slid-

ing movement between the leveler device 75 and the track member permits back and forth movement of the wall to properly align it with the next adjacent wall panel during assembly.

After the wall panel has been properly positioned the wall base section 18 is fastened by suitable clips (not shown) to the wall panel so that the same is locked in position since the base section 18 is already fastened by the bent ends 73 of the track member 75.

It can thus be seen that the present invention has provided a wall panel leveler device which is extremely simple in its design and construction and which permits both a raising and lowering of a wall panel as well as a tilting of the same to permit obtaining the proper orientation of the wall panel.

It should be further noted that although only one form of the present invention has been disclosed, it should be apparent to those skilled in the art of building wall panels and leveler devices, that other forms may be had all coming within the spirit of the invention and scope of the appended claims.

What is claimed is as follows:

1. A leveler device for use within a building wall panel, said leveler device comprising:
 - a first longitudinally disposed support plate having a lower surface thereof adapted to abut the floor on which said wall panel is disposed;
 - a second longitudinally disposed support plate vertically spaced above said first support plate, said second support plate having an upper surface adapted to abut a portion of said wall;
 - said first support plate having a spherical cavity on the upper surface thereof;
 - a connecting member having a spherical end permanently engaged within said spherical cavity of said first support plate forming a universal joint between said connecting member and said first support plate, said connecting member having an upper threaded section engaging a threaded aperture in said second support plate for maintaining said first and second support plates in said vertically spaced relationship, said connecting member having a multi-sided surface thereon forming a wrench engaging means for rotating said connecting member with respect to said first and second support plates while one of said support plates is restrained from rotating motion with respect to said floor such that said second support plate is raised and lowered with respect to said first support plate;
 - housing means having an upper wall and downwardly depending side walls the bottom surface of said upper wall being in abutment with the upper surface of said second support plate the opposing inner surfaces of said side walls being in an abutting relationship with the side surfaces of said second support plate to restrain said second support plate from relative rotational movement the longitudinal axes of said first and second support plates being disposed along the longitudinal axis of said wall panel when the same is assembled;
 - said housing means being disposed within said wall panel at a predetermined central location with the upper wall of said housing means having an aperture disposed at the center line of said wall panel, said threaded section of said connecting member being received in said aperture when said leveler

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device is disposed in said housing means to properly locate said leveler device with respect to said wall panel.

2. The leveler device defined in claim 1 further comprising a slot in one of said side walls of said housing 5

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means to permit access to said multi-sided portion of said connecting means to facilitate rotation of said connecting member in opposite directions.

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