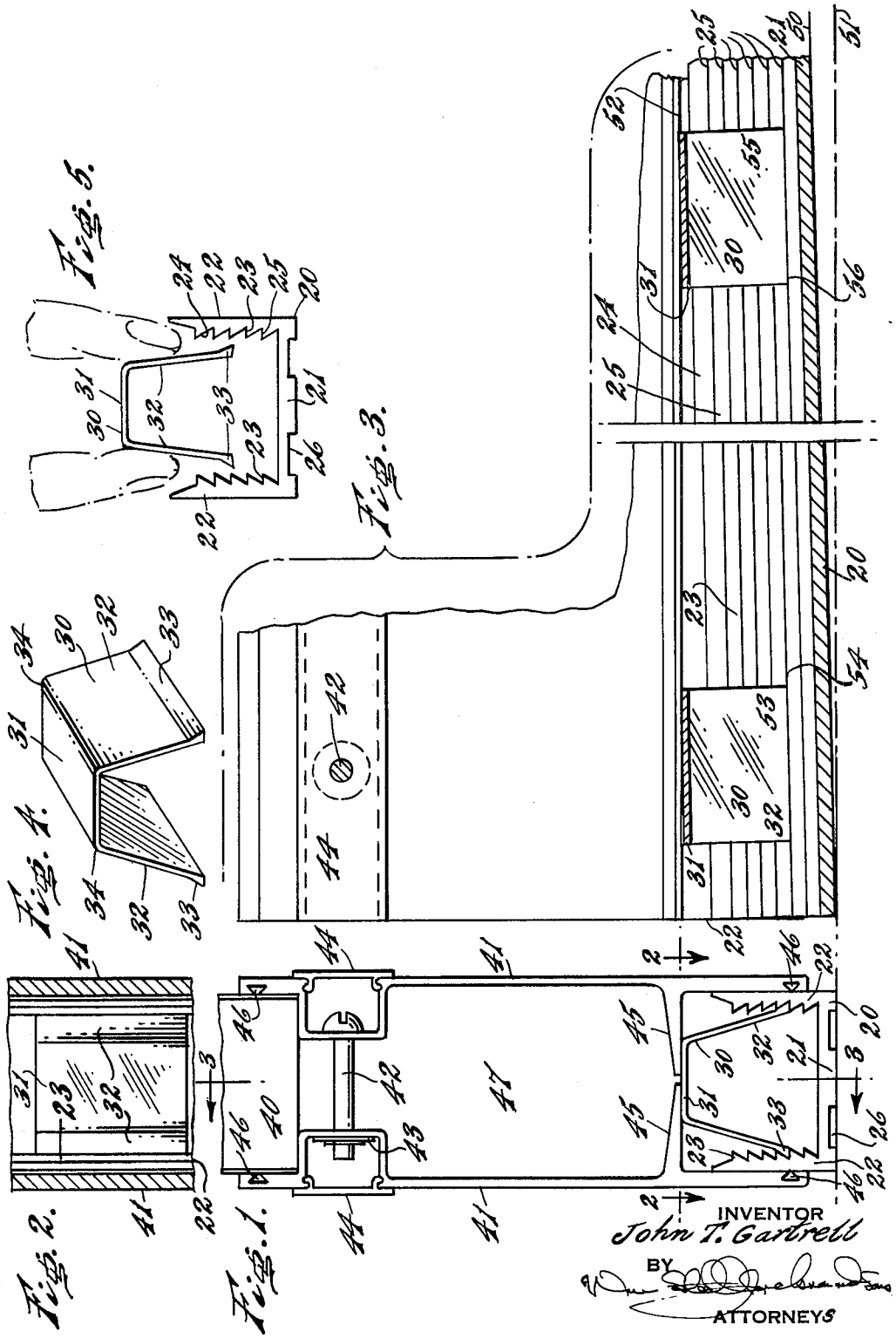
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ADJUSTABLE SUPPORT FOR PARTITIONS AND CURTAIN WALLS

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ADJUSTABLE SUPPORT FOR PARTITIONS AND CURTAIN WALLS

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This invention relates to supports for walls and more particularly to supports which can compensate for the unevenness of a floor in providing level supports for walls.

A purpose of the invention is to provide a level base for partitions or curtain walls.

A further purpose is to compensate for deviation from levelness of floors in the support of walls.

A further purpose is to eliminate elaborate shimming arrangements between floor and panels to provide a level base for the panels.

A further purpose is to eliminate leveling screws in the base of panels to level the panels.

A further purpose is to build a leveling support into the base of the wall structure.

A further purpose is to provide support elements which are short and placed at intervals and levelled independently of one another.

A further purpose is to place the support elements initially in the bottom of a channel and then after having established the highest position, run a level line at the highest level by pulling up all the supports until they are flush with the level line or closely approach it.

A further purpose is to provide a support element which is very easy to pull up but cannot be pushed down.

A further purpose is to provide a saddle element which must be compressed to move in a downward direction.

A further purpose is to provide a saddle which is strong and can effectively bear the weight.

A further purpose is to provide a saddle which provides very little resistance to movement in a direction away from the base of the channel but which carries downward forces along the length of the outwardly diverging legs into the flanges of the channel.

Further purposes appear in the specification and in the claims.

In the erection of panels in interior partitions of materials such as plywood, metal, Masonite, hard boards, glass or a composite laminate of several materials, panel assemblies are erected at the construction site to form a wall. These panels and walls are supported from the floor and extend partially or completely to the ceiling, dividing the room into separate spaces. In normal building construction especially where, as in most buildings, floors and ceilings are installed without any reference to intended partitions, there is likely to be a considerable deviation from levelness in the floors. If the partitions are erected directly on the floor base, considerable difficulty is encountered in matching the panels and obtaining a straight, strong, tight, neat appearing wall.

In the prior art, it has been customary to adapt the partition in some way to this lack of level foundation by, for instance, a technique of providing shims between the floor and the panel. Another technique is to build leveling screws into the panel and tighten the leveling screws to various extents until they effectively bring the panels into a straight level relationship.

These techniques are tedious and in some cases not too satisfactory and they may even fail to produce a thoroughly effective leveling, particularly as shims may become displaced later unless they are very well locked and held.

In the present invention, leveling elements are built into the base of the structure so that the partition is supported along its base by a series of saddles which engage by means of teeth a channel which rests on the floor along the entire length of the partition. Deviations from level in the floor are compensated by engaging the saddles selectively in teeth at different elevations.

In the drawings, I have chosen to illustrate one only of the numerous embodiments in which my invention may appear, selecting the form shown from the standpoints of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

FIGURE 1 is a vertical sectional elevation of the adjustable bearing support of the invention.

FIGURE 2 is a plan section taken on the line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary longitudinal sectional elevation taken on the line 3—3 of FIGURE 1.

FIGURE 4 is a perspective view of the saddle of the invention.

FIGURE 5 is an end elevation of the support of the invention showing the legs of the saddle in compression.

In FIGURE 1, I illustrate a channel 20 resting on the floor having a web portion 21 and upstanding flange portions 22. Longitudinally extending teeth or serrations 23 extend along the inside surfaces of the flanges 22. The teeth in cross section have a gradual tapering surface 24 on the side toward the web 21 and have an abrupt shelf-like surface on the side 25 away from the web 21 in cross section. In effect, these teeth constitute a series of longitudinal shelves having an upper surface approaching the horizontal and having a lower surface which extends in a gradual divergence from the vertical. The teeth or serrations 23 extend for the entire length of the channel. The planes in which the surfaces 24 lie are all parallel to one another on each flange of the channel, and the surfaces 25 are also parallel to one another on each flange of the channel.

Longitudinal grooves 26 extend along the underside of the web 21. Saddles 30 having a platform 31 and divergent legs 32 are suitably of metal but can to advantage be of polyvinyl chloride, polyvinyl chloride acetate, or other somewhat stiff elastomeric materials. These saddles are of suitably short length, for example 2 inches, when used for example with a channel having an overall width of approximately one and two-fifth inches and a flange height of one and one-eighth inches. The legs have a foot portion 33 extending longitudinally of the saddles and having a cross section which matches the tooth profile of the teeth 23. The saddle is of sufficient resiliency and elasticity to be compressed by having the legs 32 forced toward one another about axes 34.

The legs when not compressed by converging horizontal forces against the legs 32, extend in an outwardly divergent direction. A suitable batten arrangement for connecting a panel 40 to the channel 20 and the saddle 30 consists of battens 41 which are locked together by a bolt 42, held by a nut 43, with suitable closure such as a snap-in closure strip 44. The battens near the bottom have an inwardly directed flange 45 which rests upon the saddle 30. Grooves 46 are provided near the ends of the battens 41 which can, if desired, take a suitable sealing strip 46 which can, for example, be of polyvinyl chloride or chloride acetate, nylon, or the like.

The bottom battens 41 enclosing space 47 can conveniently be made to serve the function of a wiring space and therefore they can carry such things as wires, cables, intercom wiring as well as the receptacle boxes, circuit breakers or any small equipment of that sort that is needed.

In operation, the channel is placed onto floor 50 as shown in FIGURE 3 and securely anchored to the floor

by means of bolts, screws, or some other type of mechanical fastener. For purposes of illustration, the floor 50 slopes as shown by the reference to the horizontal 51. The saddles 30 are then placed at suitable intervals along the channel as for instance at three feet intervals. The saddles are inserted into the channels by exerting converging horizontal forces to force by finger pressure the legs inwardly against their elastic bias as shown in FIGURE 5, or by using a pair of pliers or other special tool. The saddles are placed in the channel so that the seats 33 of the saddle engage the lowermost teeth or serrations 23. The saddles are in effect placed at the bottom of the channel. The highest position along the floor directly underneath the entire length of the partition is determined and the level line for the platform 31 of the saddle is determined on the basis of the height of the platform 31 of the saddle at that highest point. All the saddles are then pulled up as necessary until they are flush with the level line or closely approach it. As seen in FIGURE 3 the level line was determined at 52. The saddles 30 were pulled up so that their platforms 31 are at this level line 52.

The legs 32 and seats 33 will then engage the teeth or serrations 23 at a level suitable to support the saddles at the proper height. Where necessary a single shim may be used between the top of the platform and underneath, for instance, the flanges 45 to correct any difference due to a lack of teeth at the exact desired location. It will be seen that in FIGURE 3 the saddle at location 53 rests on a tooth at elevation 54 which would be two teeth above the web 21 while the saddle at location 55 rests on tooth 23 at location 56 which is one tooth above the channel web 21.

It will be seen that by the configuration of the teeth, the saddles may be moved in a direction upwardly by exerting a vertically upward force on the underside of the platform 31 so that the seat 33 and legs 32 ride along the teeth 23 in ratchet fashion, being forced inwardly periodically by the surfaces 24. When a force is exerted downward on the platform 31 of the saddle 30, the element 30 acts in true saddle fashion and the compressive forces are carried directly along the legs 32 into the bottom channel 20. This causes the seat 33 to securely engage the surfaces 23 of the teeth to constrain the saddle from downward movement and the surfaces 24 restrain the teeth from outward movement. Hence there is no component of a vertical downward force exerted on the saddle which could tend to cause the saddle to leave the notch in which it is seated, but rather the major force component tends to hold the saddle in the notches. The legs of the saddle are not subjected to either bending or torsion but are subjected to straight line compression.

Therefore the saddle element is very strong and can effectively bear the weight not only of the bottom battens but also of the particular combination of panels and glass or whatever it may be that is positioned above. The battens 41 are then placed into position so that their flanges 45 rest on the platforms 31 which are now substantially in a level horizontal plane. The panels 40 are then placed into position along the entire length of the partition and the bolts 42 and connections 43 are inserted to hold the battens together. The covers or snap-in closure

strips 44 are then applied. Suitable wiring or the like may be inserted through spaces 47.

While the above discussion has been directed primarily to interior partitions, it will be evident that the invention can be used not only for what are technically known in the building trade as partitions, but could be used for external curtain walls, and also for internal walls which are not of the usual partition type, such as walls around elevator shafts and other construction of that sort.

It could also be used for other leveling requirements, for example in portable buildings or self-contained buildings, and also for leveling of equipment and the like. This will include some light machinery applications.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. An adjustable bearing support for a wall having a downwardly opening channel portion at the bottom edge thereof comprising an elongated U-shaped channel including a base and upright flanges extending from the marginal edges of the base, said flanges having smooth outer faces received in the downwardly opening channel portion of the wall and having a series of vertically stepped teeth extending continuously with the flanges of the channel on the inner face of each flange in opposition to one another; and a plurality of substantially inverted U-shaped saddles, each having a platform portion supporting the wall vertically and extending parallel to the base of said channel, and downwardly divergent resilient legs descending from the platform at the marginal edges thereto, and a shoulder on the extremity of each leg engaging said teeth on the channel flanges; each of said channel teeth comprising in cross section a lower wall which converges toward the saddle platform, and an upper wall which is substantially horizontal, whereby said saddle is free to move vertically upward under a vertically upward force and is restrained from moving vertically downward under a vertically downward force.

2. The support of claim 1 wherein each shoulder has a cross section conforming to the cross section of the vertical space between any two adjacent teeth of a series on said channel.

References Cited by the Examiner

UNITED STATES PATENTS

513,058	1/1894	Rahmer	248—188.5
2,676,483	4/1954	Nelson	189—88 X
2,863,184	12/1958	Hovind	20—74
2,958,982	11/1960	Baker	189—34 X

FOREIGN PATENTS

193,592	11/1957	Austria.

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