Dec. 8, 1964 A. M. MASTERS 3,160,247

SUPPORTING STRUCTURE FOR A WALL AND THE LIKE

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Fig. 1

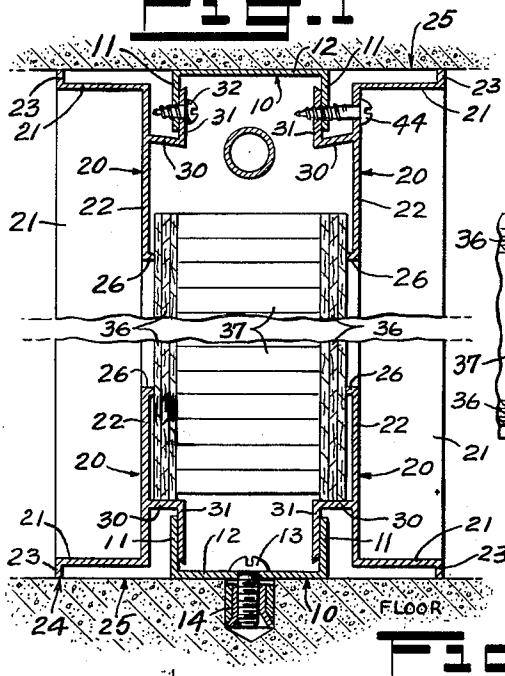


Fig. 3

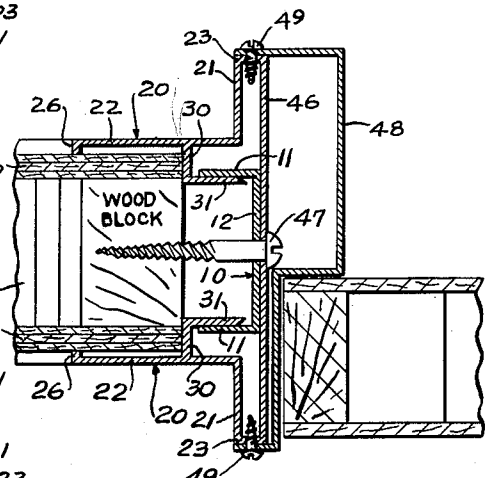


Fig. 3A

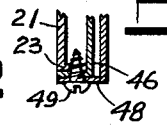


Fig. 2

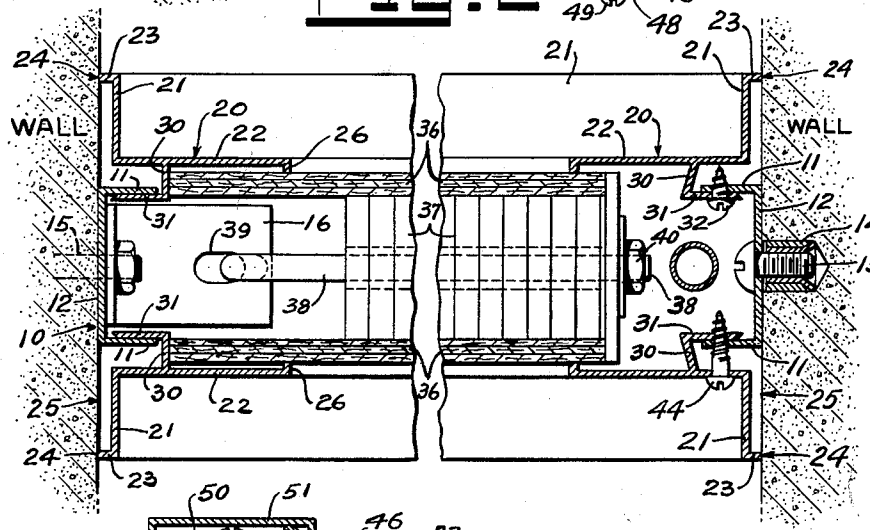
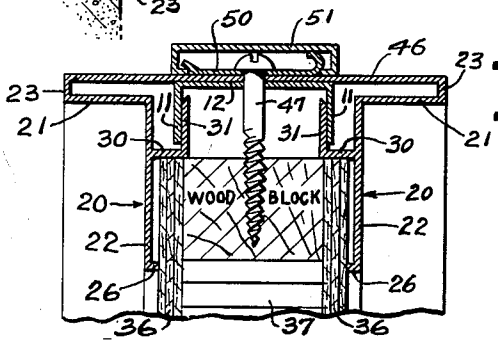


Fig. 4



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Fig. 5

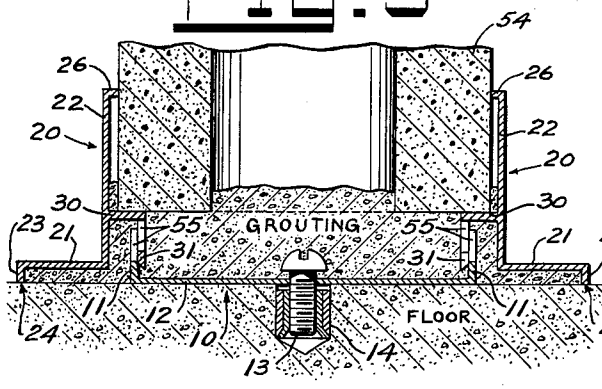


Fig. 7

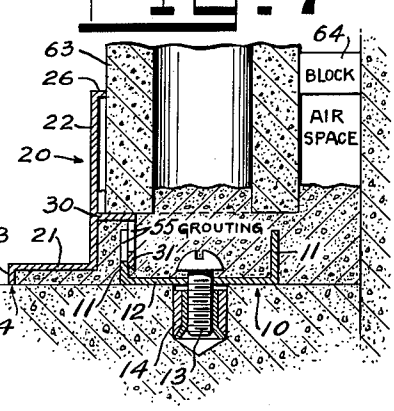


Fig. 8

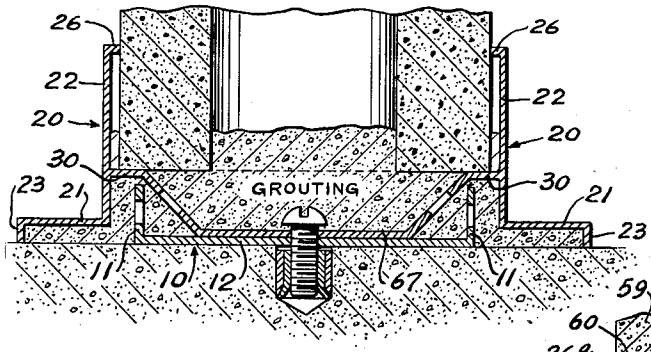


Fig. 6

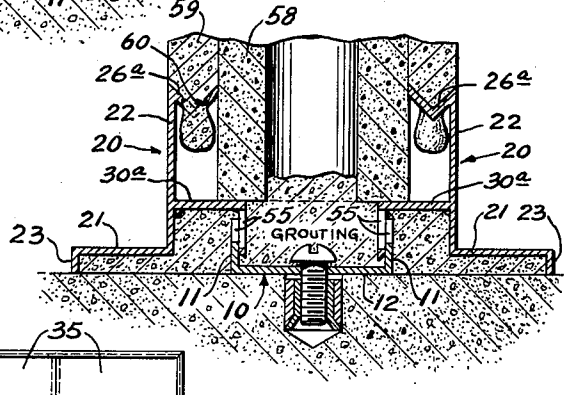
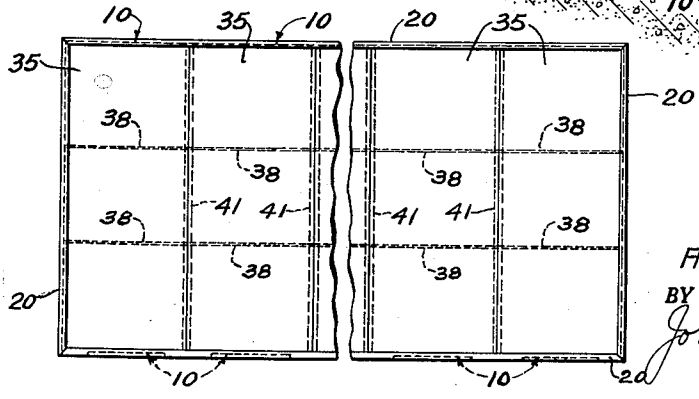


Fig. 9



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SUPPORTING STRUCTURE FOR A WALL AND THE LIKE

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13 Claims. (Cl. 189—34)

The invention relates to a supporting structure for a wall and the like and is designed primarily for buildings where an outer wall alone is provided or hallway walls also with the rest of the floor area open so that a partition wall or room separating wall may be placed anywhere desired. Such walls may be of the removable type which can be dismounted and moved to another location or one which is easily torn down so that a wall can be erected at another location as need may require. The supporting structure also serves as trim for the wall at floor, side walls and ceiling. The wall supporting structure may be of any suitable material, however, extruded aluminum shapes of many forms are or can be made and the supporting structure has been designed to utilize a shape or shapes which can be extruded.

It is an object of the invention to construct a wall supporting structure which eliminates most of the exterior or visible screw heads usually necessary with wall supporting means.

Another object is to construct a wall supporting structure which is easily erected.

A further object is to provide a wall supporting structure which uses a minimum number of parts and yet provides effective anchorage of the wall.

A still further object is to provide a wall supporting structure which is so constructed that the weight of the wall or pressure otherwise exerted thereupon causes the edge of the supporting structure which engage the floor or wall to be pressed inwardly to engage and clamp the wall surface and conform to the unevenness which often exists.

Another object is to provide a wall supporting structure which will permit the partition or wall a great deal of latitude to shift with respect to the supporting means as floors and/or walls settle or the supporting structure to shift with respect to the partition under settling.

A still further object is to construct a supporting structure for a wall such as of masonry which supporting means is suitable for application of a plaster surface over the wall.

Other objects of the invention will be more apparent from the following description when taken in connection with the acompanying drawings illustrating preferred embodiments thereof in which:

FIG. 1 is a vertical section through a part of a wall showing the supporting structure at floor and ceiling;

FIG. 2 is a horizontal section through a part of a wall showing the supporting structure at each wall;

FIG. 3 is a section through the supporting structure and wall where a door is provided and showing a door buck;

FIG. 3A is a partial view of a modified form of FIG. 3;

FIG. 4 is a vertical section at the top of a wall which is spaced below the ceiling;

FIG. 5 is a vertical section through the supporting structure as used with a masonry block wall;

FIG. 6 is a vertical section through the supporting structure as used for a masonry block wall to which a plaster face is applied;

FIG. 7 is a vertical section through a wall portion and a supporting structure used with a masonry wall facing for an exterior or permanent wall;

FIG. 8 is a vertical section through a wall portion and supporting structure somewhat similar to that of FIG. 5 in which the pair of spaced supporting means are integrally connected to form a single structure; and

FIG. 9 is a plan view of wall portions of a panel type of partition wall.

The supporting structure of FIGS. 1 through 4 shows its use with a partition wall made up of a plurality of panels as particularly described in application S.N. 54,197 filed September 6, 1960, although any suitable built up wall may be substituted therefor. The supporting structure herein enables simplification of the partition construction of that application by the elimination of a vertical insertable channel member at the ends of the partition or at the walls. It also eliminates a large proportion of, or reduces materially, the number of visible screw heads.

The supporting structure comprises supporting means which includes anchor means **10**, shown as a separate channel means in the form of FIGS. 1 and 2, having upstanding flanges **11** at the edges of the web **12**, the flanges having inner faces. The channel means for the floor is anchored to the floor with its web in contact therewith, such as by screws **13** passing through the web, the screws shown being rawl screws using a bushing **14** in the floor. Anchor means or channels **10** are secured to the walls as well as to the ceiling in alignment with the floor channel as will appear. In the construction as illustrated in FIG. 2, the partition wall is anchored to one, or as shown the left, wall in which case a firmer anchorage is desired and here a bolt **15** is shown which also secures a tie rod bracket **16** within the anchor means or wall channel. The bracket engages the web of the channel so that the bolt here, not only anchors the channel to the wall but also firmly anchors the tie rod bracket to the channel and wall. The anchor or channel means may be continous extending for the full dimension of each of the floor, walls and ceiling or it may be a plurality of spaced, aligned channel sections.

The supporting means, FIGS. 1 to 3, 5, and 6 also comprises a pair of separate spaced supporting members **20** between which the wall is received and which also serve as trim for the wall. The supporting members extend the full length of the floor, walls or vertical length of a low partition wall and at the ceiling or top of a low partition wall. The supporting members have a lateral portion **21** and a vertical portion **22** extending vertically or generally vertically with respect to the lateral portion. Each portion has a outer edge. A base lip **23** is provided at the outer edge of the lateral portion and it extends outwardly or in a direction oppositely from that of the vertical portion. The contacting base edge **24** of the base lip defines a base plane **25** which corresponds with the plane of floor, wall and ceiling. The base lips are of relatively small dimension so that they do not materially stiffen the flexibility of its portion. The vertical portion has at its outer edge an inwardly extending wall lip **26**. In the construction of FIGS. 1 to 5, 7 and 8 the wall lip is of relatively small lateral or inward dimension as well.

The supporting member or the vertical portion **22** carries at its midsection, a ledge **30** extending inwardly and this ledge has a dimension greater than that of the wall lip **26** so that it extends a substantial distance inwardly therebeyond. An interengaging flange **31** is carried by the supporting member which is particularly shown as extending from the edge of the ledge towards the base plane **25** defined by the contacting edge of the base lip **23** and ends at a distance short of the base plane and particularly short of the web **12** of the anchor or channel means.

The supporting structure is assembled by securing in alignment anchor or channel means along the floor and the left wall. A supporting member is provided on each

side of the wall and the interengaging flange 31 is inserted against the inner face of each channel flange 11 in back to back relation or with their ledges 30 extending towards each other. Anchor or channel means, with one supporting member secured thereto by hidden screws 32 through the interengaging flange 31 and channel flange 11, is secured to the right wall and ceiling in alignment with the floor channel means. As will appear hereinafter with a floating partition wall which is not anchored to one wall, the left wall channel means will have one supporting member secured thereto by spaced screws as at the right wall and ceiling.

With a partition wall made up of a plurality of panels 35 with vertical edges in edge to edge relation as described in the aforesaid application, the panels are constructed with surface members 36 such as of plywood, metal and the like having the surface members secured together in spaced relation by suitable structure preferably of honeycomb 37 nature so that the panels are light in weight, and preferably sound transmission resistant, and fire resistant. The panel is inserted between the supporting members along the floor and on the ledges 30. The weight of the panel pivots the supporting members on the base lips 23 so that the wall lips 26 press against the wall surface. The panel is moved between the supporting members at the left wall against the ledges thereof. A vertical member 41 is inserted within the open edge of the first panel. A plurality of spaced tie rods 38 are provided for each panel extending horizontally through the panel and the vertical member, one end of which tie rod is anchored in a slot 39 in the tie rod bracket 16 and the other end of the tie rod is threaded and provided with a nut 40 so that the panel and the vertical edges of the surface members are pulled towards the wall and the wall supporting means ledges. The vertical edges of the surface members engage the ledges of the supporting members and move the same towards the adjacent wall which pivots them on the base lip and swings the wall lip against the panel surface. A second panel and vertical member is then assembled and pulled against the first panel et cetera until the wall is completed.

Each of the surface members of each panel have a bottom edge and when the panel is projected down between the supporting members these bottom edges engage the ledges of the supporting members. The weight of the panel presses these ledges downwardly and in so doing the supporting members pivot on the base lip to pivot the vertical portion or wall lip against the face of the panel. The two supporting members are prevented from spreading by the interengaging flanges 31 carried thereby interengaging with the channel flanges 11. The weight of the panel and the floor channel secures the floor supporting members in position and presses the wall lip against the face of the panel to accommodate for any unevenness that may exist as well as clamping the panel therebetween. No screws or additional securing means is provided to anchor the supporting members to the floor or the channel. The panel can be inserted between the two supporting members on the floor since the panel has a vertical length less than the distance from the lip of the vertical portion to the flange edge of the ceiling channel. In addition if the panel should have a vertical dimension slightly greater than this, there is sufficient flexibility in the supporting members so that the panel may be tilted therebetween to avoid the flange of the ceiling channel and then lowered onto the ledges and restored to vertical position. The one supporting member secured to the ceiling channel means and right wall channel means retains the wall in position.

With the panels assembled for the full length or width of the space to be partitioned between the permanent walls, a second supporting member 20 (FIG. 1) is slipped into position along the ceiling with its interengaging flange 31 interengaging the channel means flange 11 and fastened thereto such as by spaced screws 44 passing through

the supporting member to the flange of the ceiling channel and interengaging flange on the opposite side thereof from the other supporting member. These screws press the wall lip 26 of the supporting member against the face of the panel or panels and the base lip 23 against the ceiling 25 to secure the panel or wall in position on this side. A second or opposite supporting member FIG. 2, along the right hand wall has its flange 31 interengaging inside of its channel flange 11 and is similarly secured to the wall channel 12 by screws 44 which press the wall lip against the face of the panel and the base lip 23 against the wall and secures the end of the partition wall in place. It will be observed that in the assembly described screw heads are visible along the supporting member of one side only of one wall and along the supporting member at the ceiling on one side only of the partition wall (1).

As shown in FIG. 2 at the right hand wall the ledge of each supporting member may be tilted or inclined upwardly at a relatively small angle. The weight of the panel along the floor supporting members will bend or spring these ledges at least somewhat so that the greater portion of the weight will be carried at the inner edge. The pressure at the outer edge is minimized or nonexistent where the pressure may cause splinters of the outer or finish ply. If the floor should not be level, it would be desirable to place shims on the ledge at any low points.

It is not necessary that the partition wall be anchored to one wall in which event the tie rod bracket and tie rods may be dispensed with and the panel merely pressed inwardly between the two supporting members along the left hand wall until the vertical edges of the panel engage and press against the ledges. Or one supporting member may be secured to the channel flange as shown for the right hand wall and when the partition wall has been erected to secure the other supporting member in place with screws 44. Such wall is a free floating wall. Many times it would be desirable to provide a door in the partition wall in which event the construction of FIG. 3 is provided at the opposite edges of spaced panels. In this construction the pair of spaced supporting members are shown as integrally connected together by a connector or connecting wall 46 connected between the edges of the base lips 23 of the supporting members to form the integral supporting means. If desired the connector 46 may be a separate member, as shown in FIG. 3A, nested within or without the base lips of two supporting members heretofore described. For a doorway, a wood block is provided at the edge of the panel and screws 47, or other securing means, through the connector of the supporting means and the channel web 12 which presses the ledges 30 of the supporting means against the vertical edges of the panel. A door buck 48 is then fastened to the supporting means such as by screws 49 and forms one side of the door frame in the partition wall. The other side of the door frame and the lintel is similarly constructed and assembled.

Sometimes a partition is desired which does not extend to the ceiling but has an open space between the top of the partition and the ceiling. Such a construction is shown in FIG. 4 in which the integral supporting means extends along the top of the partition is the same as that shown for the door frame. The screws are threaded into a wood block extending along the upper edge of the panel for clamping the supporting means and its ledges against the top edge of the surface members of the partition or panels. Spaced clips 50 may also be secured by the screws 47 to the upper surface of the connector 46 of the supporting means and a cap trim 51 may be snapped onto the clips to conceal the screw heads.

The supporting means is equally suitable for more permanent forms of partitions or partition walls as shown in FIGS. 5 through 8. In FIG. 5, the construction is as described in FIGS. 1 through 4 excepting that the anchor

or channel means is wider to adapt the same for a wall using a four inch masonry block **54** or the like. The weight of the wall presses on the ledges **30** of the supporting members to pivot the same on the base lip **23** and press the wall lip **26** against the face of the wall. The channel flanges **11** and interengaging flanges **31** may have holes or recesses **55** to flow grouting therethrough which is poured down through the opening in block **54**. The wall and ceiling construction and assembly is as described in connection with the walls of FIGS. 1 to 4.

FIG. 6 shows another form of wall or partition using two inch masonry blocks **58** or the like to form a wall over which a plaster face **59** of substantial thickness may be provided. In this construction the wall lip **26***a* is of sufficient inward dimension so that a groove may be provided therein for anchoring the plaster to the supporting members with the exterior surface of the vertical portion **22** of the supporting member being level with the plaster surface. The wall lip preferably has spaced holes **60** through which plaster is pressed to form a plaster lock or key with the supporting member. Since the wall lip in this construction is of greater width or dimension, the ledges **30***a* also must be of greater width in order to provide a ledge which protrudes beyond the inner edge of the wall lip and against which the first run of masonry blocks **58** rest. If desired a thin plaster layer may be provided over the wall surface of a form such as that of FIGS. 5 and 8 particularly as well as the other figures, provided the surface of the wall is grooved or apertured such that the plaster may cling or interlock therewith.

FIG. 7 shows a masonry wall **63** such as of two inch masonry blocks providing a facing for a permanent exterior or interior wall. In this construction a single supporting member is provided upon one side only, however, it functions in the same manner as described. The anchor means or channel **12** in this construction needs but one flange although two are shown. Preferably the masonry wall is spaced from the exterior wall to provide an air space. A holding block **64** may be used to brace the blocks as they are mounted until the cement has hardened. The channel and surrounding area may be filled with grouting.

FIG. 8 shows a modified form of construction of supporting means shown particularly as an alternate to that of FIGS. 3 and 4 although a similar construction may be used with that of FIG. 6. In this construction the supporting members are integrally connected together by a connector **67** extending from the ledges and projecting downwardly to permit pivoting of the supporting members upon the edge of the base lip.

In the constructions of FIGS. 3, 4 and 8 the channel may be dispensed with, however, it gives additional rigidity to the assembly. In these constructions the connectors **46** and **67** are the anchor means for securing the supporting members in spaced relation and which is adapted to be secured to the floor, walls and ceiling of the building as well as to the partition in the constructions of FIGS. 3 and 4. It is understood that the supporting means of FIGS. 3, 4 and 8 may be substituted for those wall supporting structures shown in FIGS. 1, 2, 5, 6 and 7.

This invention is presented to fill a need for improvements in a supporting structure for a wall and the like. It is understood that various modifications in structure, as well as changes in mode of operation, assembly, and manner of use, may and often do occur to those skilled in the art, especially after benefiting from the teachings of an invention. This disclosure illustrates the preferred means of embodying the invention in useful form.

What is claimed is:

1. A supporting structure for a building wall and the like having thickness comprising supporting means including at least one supporting member and anchor means to retain said supporting member in position corresponding to the wall thickness, a ledge carried by said supporting member extending inwardly and being attached to the supporting member at a mid portion of the latter, said supporting member including a lateral portion of substantial width and a vertical portion extending from the ledge and generally vertically to the lateral portion and of substantial width, each portion having flexibility and an outer edge, a base lip carried by the outer edge of the lateral portion extending outwardly and having a base edge defining a base plane, a wall lip carried by the outer edge of the vertical portion and extending inwardly, at least one of the lips having a small dimension to retain its flexibility to conform to irregularities in the surface it engages, the ledge extending inwardly a distance greater than the wall lip, and the anchor means permitting inward pivotal movement of said supporting member from the base lip from pressure on the ledge and retaining the supporting means in place.

2. A supporting structure as in claim 1, a pair of spaced supporting members, and the anchor means retaining the supporting members in spaced relation between the wall lips corresponding to the wall thickness.

3. A supporting structure for a wall and the like having thickness comprising supporting means including at least one supporting member and anchor means, the anchor means being a separate part having a web and at least one upstanding flange with an inner face, a ledge carried by the supporting member extending inwardly and being attached to the supporting member at a mid portion of the latter, said supporting member including a lateral portion of substantial width and a vertical portion extending generally vertically to the lateral portion and of substantial width, each portion having flexibility and an outer edge, a contact base lip carried by the outer edge of the lateral portion extending outwardly and having a contact edge defining a contact plane, a wall lip carried by the outer edge of the vertical portion and extending inwardly, at least one of the lips having a small dimension to retain its flexibility to conform to irregularities in the surface it engages, the ledge extending inwardly a distance greater than the wall lip, an interengaging flange carried by the supporting member and extending vertically towards the base plane of the base lip and having a length to engage the inner face of the anchor means flange, the anchor means flange having a vertical dimension less than the vertical dimension from the base plane to the ledge, and the interengaging flange having a length such that its edge is spaced a substantial distance above the base plane to permit vertical relative movement with respect to the anchor means flange.

4. A supporting structure as in claim 3 in which at least one wall lip is of substantial width for a plaster surface for the wall and of groove form.

5. A supporting structure as in claim 3 in which the anchor means includes a pair of upstanding flanges and the supporting means includes a pair of spaced supporting members, the interengaging flange of each of which engages one of the channel flanges.

6. A supporting structure as in claim 2 in which the anchor means is integrally connected between the supporting members at a point spaced from the wall lip.

7. A supporting structure as in claim 6 in which the anchor means is integrally connected with the base lips of the supporting members.

8. A supporting structure as in claim 6 in which the anchor means is integrally connected with the ledges of said supporting members.

9. A supporting member for a building wall and the like having thickness comprising a lateral portion of substantial width and a vertical portion extending generally vertically to the lateral portion and of substantial width, each portion having flexibility and an outer edge, a base lip carried by the outer edge of the lateral portion extending outwardly and having a base edge defining a base plane, a wall lip carried by the outer edge of the vertical portion and extending inwardly, at least one of the lips having a small dimension to retain its flexibility

to conform to irregularities in the surface it engages, a ledge carried by said supporting member extending inwardly a distance greater than the wall lip and the ledge being attached to the mid portion of the supporting member, and an interengaging flange carried by the supporting member extending vertically outwardly towards the base plane and having an end spaced inwardly from the base plane.

10. A supporting member as in claim 9 in which the interengaging flange is carried by the ledge.

11. A supporting member as in claim 9 in which the wall lip extends inwardly a substantial distance and is of groove form.

12. A supporting member as in claim 9 in which the interengaging flange extends from the ledge and the wall lip extends inwardly a substantial distance and is of groove form.

13. A supporting structure as in claim 1 in which the

other lip has a small lateral dimension to retain its flexibility laterally.

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