Oct. 31, 1967 G. J. BYSSING 3,349,529

HOLLOW WALL PARTITION SYSTEM

Filed March 15, 1965

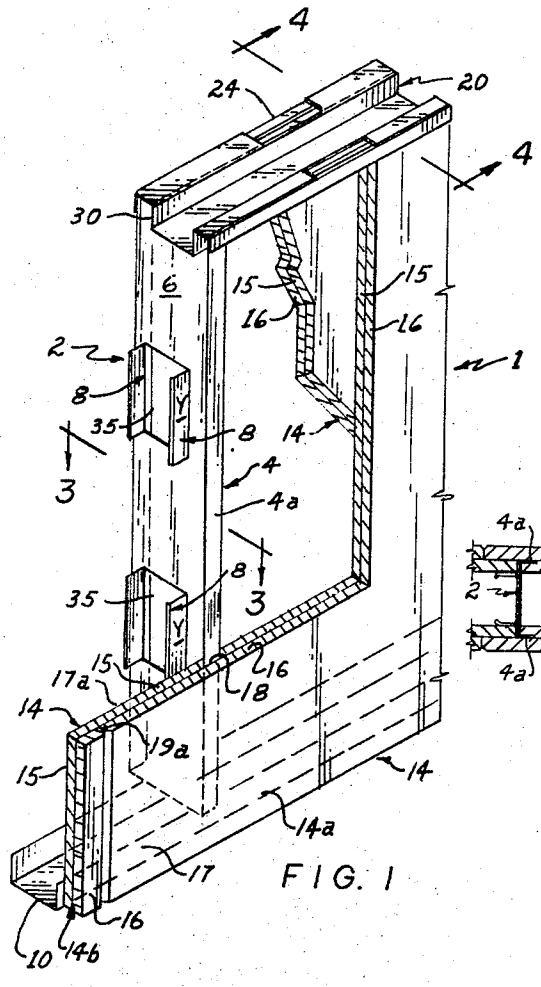


FIG. 1

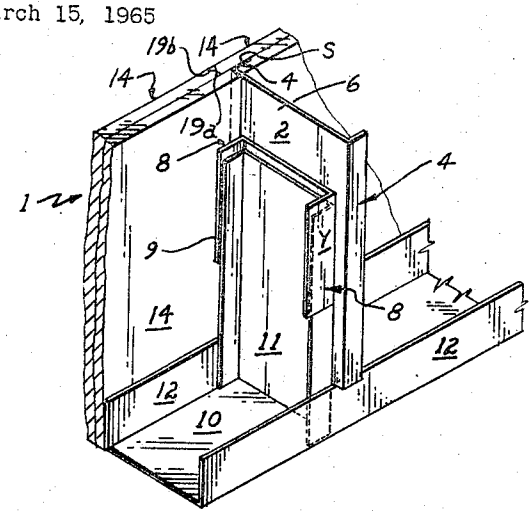


FIG. 2

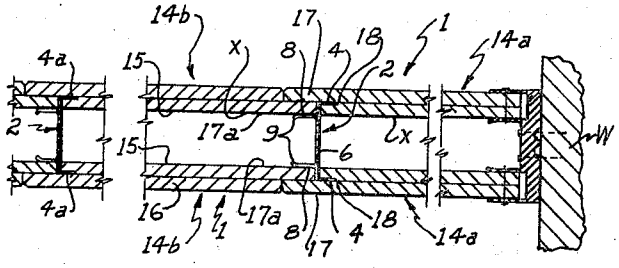


FIG. 3

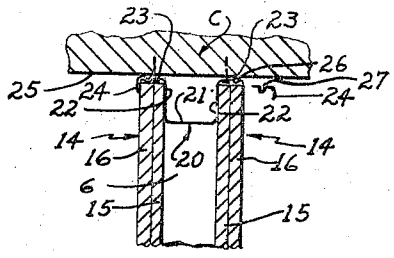


FIG. 4

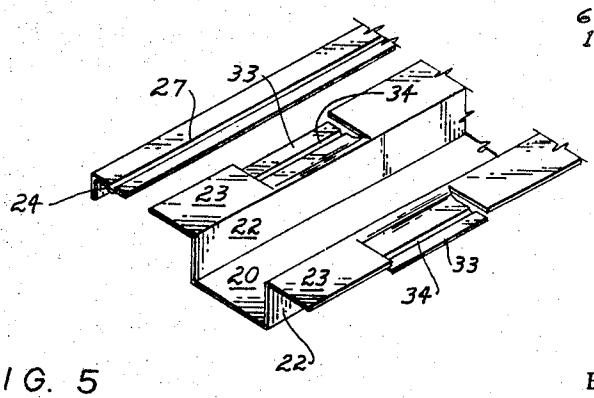


FIG. 5

INVENTOR.
GEORGE J. BYSSING

BY James E. Bryning

ATTORNEY

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HOLLOW WALL PARTITION SYSTEM

George J. Byssing, Los Angeles, Calif., assignor to Kaiser Gypsum Company, Inc., Oakland, Calif., a corporation of Washington

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This invention relates to wall structures. More particularly it is concerned with a hollow demountable type wall structure wherein novel stud means are employed for assembling and anchoring groups of opposed and spaced wall board sections in place to form the said structure. This wall structure and the elements used therein also constitute improvements over those shown in my copending application S.N. 324,105, filed Nov. 15, 1963, now Patent No. 3,320,710.

Accordingly, it is a primary purpose of this invention to provide a novel hollow demountable type wall structure which has a unique stud element incorporated therein to which various wall board sections making up the opposed walls of the hollow wall structure are connected.

This and other purposes and advantages of the instant invention will become more apparent from a review of the following detailed description when taken in conjunction with the accompanying drawing, wherein:

FIG. 1 is a cut away perspective view of an improved hollow wall structure incorporating the unique stud element of the instant invention;

FIG. 2 is a further enlarged fragmentary and perspective view of an improved wall structure incorporating the stud element of the instant invention and discloses one arrangement for removably attaching or affixing the stud element to a floor runner;

FIG. 3 is a broken and fragmentary sectional view generally taken along the line 3—3 of FIG. 1 and with parts added;

FIG. 4 is a fragmentary sectional view generally taken along the line 4—4 of FIG. 1 with parts added; and

FIG. 5 is a fragmentary exploded view of a ceiling runner and an accessory trim strip which can be used therewith in assembling the wall structure of the invention.

With further reference to the drawings, and in particular FIG. 1, the hollow wall structure of the instant invention is generally comprised of a plurality or groups 1 of wallboard sections or units and a plurality of supporting stud elements 2. Each stud element 2 is channel-shaped in cross-section such that it is provided with parallel side flanges 4 and a web portion 6. Struck out of and preferably formed integrally with the web portion 6 is one or more pairs of spaced tabs or flange elements 8. The length of these tab elements 8 is substantially less than the overall length of the web portion 6 and the stud element 2. When a plurality of flange elements or tabs 8 are used they are located in pairs at various spaced points along the length of the web with the tabs in one pair being aligned with similar tabs in another or other pairs of tabs. Any number of such pairs of tabs 8 can be used depending upon the results desired.

Tabs 8 project from the web 6 in a direction which is diametrically opposite to the direction of projection of the side flanges 4. These flange elements 8 can be advantageously located inwardly of the outer surfaces 4*a* of the side flanges 4 of the stud 2 by a distance which approximates the thickness of an inner ply of a laminated wallboard unit that is affixed to the stud element in a manner to be described more fully hereinafter. This distance, for example, can be on the order of three-eighths of an inch. In a further advantageous embodiment of the invention, flange elements 8 can be provided with inwardly directed and converging stiffening finger elements 9.

As indicated particularly in FIG. 2 a stud element 2 can be affixed to a channel-shaped base or floor runner 10 by means of a channel-shaped fitting or shoe 11. The upper portion of this shoe 11 is adapted to be disposed within and frictionally engage the inner surfaces of the flange elements 8 of the stud with the finger elements 9 acting as shoe locking elements while the lower portion of the shoe 11 fits snugly within the channel-shaped floor runner 10 and engages the inner surfaces of the side elements or flanges 12 of the floor runner 10. It is to be understood of course that suitable anchoring elements (not shown) may also be used to lock the shoe 11 to the base runner 10 such as tabs struck out of the base runner and engageable with the web and/or flanges of the shoe 11.

The stud element can be of such a length whereby the bottom of the stud 2 rests on the tops of the sides 12 of the runner 10 with the lower portion of web 6 projecting outwardly from the sides 12 of the floor runner by a distance approximately equal to the thickness of the inner ply of a laminated wallboard unit which is to be anchored to and affixed to the stud element 2.

The stud element 2 is adapted to anchor in place the individual wallboard units 14 in a first series of wallboard units on one side of the stud element 2 and to hold the wallboard units in this first series of wallboard units 14 in spaced relationship with respect to a similar series of wallboard units 14 on the opposing side of the stud element. Each of these wallboard units 14 can be made from a single piece of suitable wallboard material such as particle board, gypsum, plywood, etc. or as indicated in the drawings from a plurality of plies such as inner and outer plies 15 and 16 of such materials. These individual plies are adhesively secured or otherwise tied together in an offset fashion so as to provide an overlap or shiplap portion 17 on the outer ply 16 at one side edge of the unit 14 and similar overlap portion 17*a* on the inner ply 15 at the other side edge of the unit 14. A rabbet groove or kerf 18, the purpose of which will be described more fully hereinafter, is also located in the wallboard unit 14 adjacent the terminal side edge of the inner ply 15 associated with the overlap 17 of the outer ply 16.

In assembling the wallboard units on one side of the stud element 2 or the wallboard units making up one series of units and with base runner 10 and a top runner 20, to be described more fully hereinafter, all in place, a first wallboard unit 14*a* as indicated in FIG. 1 is mounted upon a stud 2 in such a fashion that the groove or kerf 18 of unit 14*a* receives and accommodates one of the side flanges 4 of the stud. Thereafter, a second wallboard unit 14*b* is mounted upon the same stud 2 in such a fashion that the shiplap portion 17*a* of unit 14*b* is lodged or sandwiched between a tab 8 and shiplap portion 17 of the outer ply 16 of the unit 14*a* and with the inner surface *x* of the unit 14*b* engaging the outer surface *y* of the tab or flange element 8. At the same time the opposing free edges 19*a* and 19*b* of the wallboard units 14*a* and 14*b* will be in abutting side edge to side edge engagement with each other.

After a series of wall units 14 are installed in the manner noted above on one side of the stud elements 2 the second series of wall elements can be installed in a similar fashion on the other side of the stud elements. As indicated in FIG. 3 a simple double channel member secured to a wall *w* or door frame can be used to anchor the endmost wallboard unit in a given series to the wall or door frame.

In the final hollow wall structure, it will be observed by reference to FIG. 4 that a suitable top runner or top channel 20 is used. Top channel 20 is provided with a web 21 of a width corresponding to the spacing between flange elements 8 of a stud element 2 and sides 22. Runner

20 is nailed to the ceiling *c* by means of nails which project through the outwardly projecting flanges 23 of this top runner 20. These top flanges 23 are generally of a width corresponding to the overall thickness of wallboard unit 14. The top of each stud element is cut away at 30 to receive and mate with the ceiling channel 20.

In one advantageous embodiment of the invention an angle shaped trim strip 24 can be inserted or sandwiched between the wall surface 25 and the top surface of the flange element 23 of the runner 20. Mating continuous bead 26 on flange 23 and continuous bead 27 on the trim strip may be used to lock the trim strip to channel 20. In a further advantageous embodiment of the invention, in lieu of having a continuous bead on the flange element 23, the flange element 23 may have a cut away or struck out portion 33 provided with a bead 34. The horizontal flange of the trim strip 24 is then adapted to be inserted between the struck-out portion 33 and the undersurface of the main body portion of flange 23 with the beads 27 and 34 mating with each other in the manner indicated in FIGS. 1 and 5.

As noted above, the flange elements 8 are disposed inwardly from or are spaced from the outer surfaces 4*a* of the side flanges 4 by a distance which is substantially equal to the thickness of the innermost ply of an overall wallboard unit 14 in the case of where the wallboard unit is made up of several plies. In the case of where the wallboard unit is made from a single ply provided with a rabbet groove 18 and lapping portions 17 and 17*a* this distance is substantially equal to the distance between the outermost surface *s* of the rabbet groove and the inside surface *x* of the unit. This same spacial relationship between a tab 8 and its associated side flange 4 is likewise true of course in the case of where wallboards of plural plies are anchored thereto. By virtue of the fact that the side flanges 4 and flange elements 8 project in opposite directions to each other while still being located in planes which are normal to the main plane of the web 6 of the stud 2 the wallboard units will fit in snug side edge to side edge abutting relationship while the inside surfaces of the units 14 are disposed flush with the outside surfaces of the flange elements 8 and with the wallboard units in a given series being interconnected in a lap joint arrangement.

From the above description it will be obvious that the stud elements 2 are so formed that they will hold up the wallboards at one side of the hollow partition even before the wallboards for the other side of the partition have been installed. This permits the ready installation of wiring, heating ducts and piping within the wall structure prior to its completion. In this connection the outwardly projecting struck-out portions or tabs 8 which form openings 35 in the web 2 of a stud element can be advantageously used for passing wiring or piping through the wall in the event such is desired. From the above, it will be observed that various component parts of the partition are so constructed that installation thereof is a simple and easy operation.

An advantageous embodiment of the invention has been herein disclosed and described.

It will be obvious that various changes and modifications may be made therein without departing from the spirit and scope thereof as defined in the appended claims, wherein what is claimed is:

1. A stud element and floor runner assembly for use in anchoring wallboard units together in a hollow wall structure, said assembly comprising the combination of an elongated channel-shaped stud element provided with a web portion, a pair of parallel side flanges projecting from one side of said web portion and extending substantially in the same direction and at least one pair of spaced flange elements offset inwardly of the side flanges and of smaller length than said web portion, said flange elements projecting from said web portion in an opposite direction to each of the said side flanges; said flange elements being arranged substantially normal to the plane of said web portion, while being formed integrally with said web portion and said flange elements being adapted to be disposed flush against and between the opposing inner surfaces of a pair of opposed and spaced wallboard units when the said pair of units is brought into contact with the one face of said web portion; and said side flanges being insertable in grooves in a further pair of spaced and opposed wallboard units when said further pair of wallboard units is brought into contact with the other face of said web portion so as to hold said various opposed pairs of wallboard units in spaced relationship to each other; a walled floor runner and a channel-shaped shoe arranged in interlocking engagement with said flange elements and the walls of said floor runner for mounting said stud element on and locking said stud element to said floor runner.

2. In a hollow wall structure the combination of a first series of wallboard units and a second series of wallboard units disposed in spaced relationship to said first series of wallboard units, the wallboard units of each of said series being disposed in partial side edge to side edge abutment and in overlapping relationship relative to each other, one wallboard unit of each pair of abutting wallboard units in a series of units having a rabbet groove; a stud element anchored to the said pair of wallboard units, said stud element comprising an elongated channel-shaped member provided with a web portion and means for anchoring said stud element to said pair of wallboard units, said anchoring means comprising a pair of parallel side flanges extending in substantially the same direction and one of which is disposed in the rabbet groove of said one of said wallboard units in said pair of units, and said anchoring means further comprising at least one pair of spaced flange elements which project from and are of a smaller length than said web portion and said side flanges as well as being offset inwardly of said side flanges; said flange elements being arranged substantially normal to the plane of said web portion and projecting from said web portion in an opposite direction to each of said side flanges and the outside surface of the flange element associated with the side flange disposed in said rabbet groove contacting and lying flush against the inside surface of the other wallboard unit in said pair of units at a point spaced from the rabbet groove of the first mentioned unit of said pair of units.

3. A hollow wall structure as set forth in claim 2 wherein said flange elements on the stud element are provided with inwardly bent converging fingers.

4. A hollow wall structure as set forth in claim 2 wherein the last mentioned associated side flange and flange element are located in planes which are spaced from each other by a distance substantially equal to the distance between the innermost surface of the said one wallboard unit and the outer surface of the rabbet groove thereof.

5. In a hollow wall structure the combination of a first series of wallboard units disposed in partial side edge to side edge abutment and in overlapping relationship with each other and each of said individual units being provided with a rabbet groove; a second series of wallboard units disposed in partial side edge to side edge abutment and in overlapping relationship with each other, said second series of units being located in spaced relationship to said first series of units and each of the individual wallboard units of said second series of units also being provided with a rabbet groove; and stud means disposed between and anchored to individual wallboard units of each series of units so as to hold each series of wallboard units in opposed and spaced relationship to each other; said stud means comprising an elongated channel-shaped stud element provided with a web portion and means for anchoring said stud element to individual units of said first and second series of units, said last mentioned means comprising a pair of parallel side flanges on the stud element which project in substantially the same direction and are inserted in the rabbet grooves of opposed and spaced wallboard units in said first and second series of wallboard

units so as to be interlocked therewith; and said last mentioned means further comprising at least one pair of parallel spaced flange elements offset inwardly of said side flanges and projecting outwardly from but of smaller length than said web portion, said flange elements also being formed integrally with and projecting from said web portion in a direction opposite to said side flanges, the outer surfaces of said flange elements being in abutting engagement with and lying flush against the inside surfaces of certain opposed wallboard units in said first and second series of wallboard units.

6. A hollow wall structure as set forth in claim 5 wherein a flange element on the stud element is spaced inwardly from the nearest side flange thereof by a distance substantially equal to the distance between the inner surface of the wallboard unit anchored directly to the last mentioned side flange of the stud through the medium of the rabbet groove thereof and the outer surface of the rabbet groove of said last mentioned wallboard unit.

7. In a hollow wall structure the combination of a floor runner; a first series of wallboard units disposed in side edge to side edge abutment and in overlapping relationship with each other, and each of said units being provided with a rabbet groove; a second series of wallboard units disposed in side edge to side edge abutment and in overlapping relationship with each other, said second series of units being located in opposed and spaced relationship to said first series of wallboard units and each of the individual wallboard units of said second series of wallboard units also being provided with a rabbet groove; stud means mounted on the floor runner and disposed between the first and second series of wallboard units and anchored to the individual wallboard units of each series of units for holding each series of wallboard units in opposed and spaced relationship to each other; said stud means comprising an elongated channel-shaped stud element provided with a web portion and means for anchoring said stud element to said units in said first and second series of units, said anchoring means comprising a pair of parallel side flanges on said stud element which project in substantially the same direction and are inserted in the rabbet grooves of certain opposed and spaced wallboard units in said first and second series of wallboard units so as to be interlocked therewith; and said last mentioned means further comprising at least one pair of parallel spaced flange elements projecting outwardly from and of smaller length than said web portion, said flange elements also being formed integrally with and projecting from said web portion in a direction opposite to said side flanges, the outer surfaces of said flange elements being in abutting engagement with the inside surfaces of other opposed wallboard units in said first and second series of wallboard units; and a channel-shaped fitting interposed between said floor runner and said stud element, said fitting being locked both to the floor runner and the flange elements of said stud element.

References Cited

UNITED STATES PATENTS

1,981,240	11/1934	McNeil	52—242 X
2,078,620	4/1937	Venzie	52—481 X
2,256,394	9/1941	Lamel	52—494 X
2,851,740	9/1958	Baker	52—489 X
2,958,403	11/1960	Robertson	52—495
3,125,193	3/1964	Brown	52—495

FOREIGN PATENTS

829,287	1960	Great Britain.

JOHN E. MURTAGH, *Primary Examiner.*