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2,730,210

WALL UNITS

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Fig. 1.

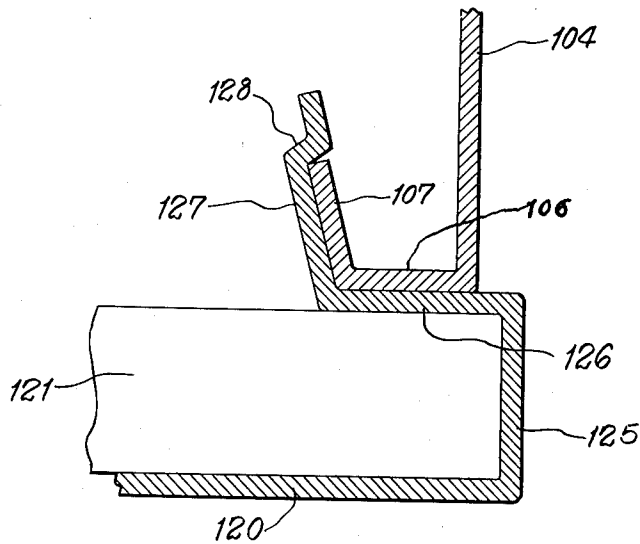
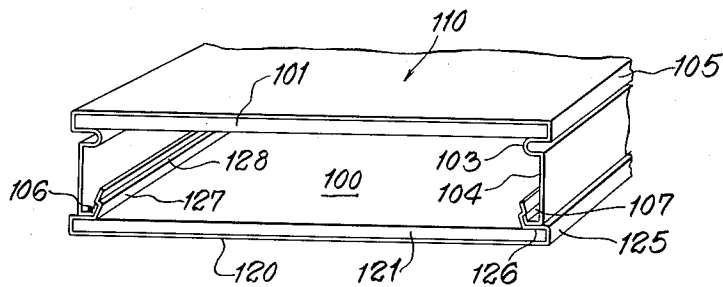


Fig. 2.

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2,730,210

WALL UNITS

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4 Claims. (Cl. 189—34)

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This invention has to do with wall units, particularly those adapted for use in prefabricated houses.

The wall units are made of sheet metal and are designed particularly for manufacture in roll-forming machines so that they can be manufactured on a production line basis. The units are adapted to be used in the formation of the various wall elements of a house, particularly the vertical walls and ceilings, and may be used in the form shown or with slight modifications to form the roof and floors.

The wall units are adapted to be quickly assembled or disassembled through the use of simple coupling elements. A suitable and preferred form of coupling is disclosed in our copending application Serial No. 484,682, filed January 28, 1955. The units form ducts which can be used for heating and ventilating and for installing plumbing and electrical equipment.

In the drawing,

Fig. 1 is a sectional view of the wall unit showing a portion of the unit in perspective; and

Fig. 2 is a sectional view of one of the joints between the two elements comprising the wall unit.

The wall unit consists of a main channel-shaped element 100 and a cover element 120. The web 110 of the channel 100 is the exterior wall surface. The longitudinal edge of each of the flanges of channel 100 is bent inwardly substantially at right angles to the plane of the flange as at 106, and the inner portion 107 of the inturred edge is bent toward the web 102 at an obtuse angle from the inturred edge portion 106. The inwardly bent edge portions 106 of the main channel flanges add additional strength and rigidity to the wall unit and the inner edge portions 107 serve as retaining elements for the detachable cover element 120.

As shown in the drawing, each flange of the channel 100 has a reentrant portion 103 which forms a groove on the exterior and a shelf or flange on the interior face and an inset portion 104. The configuration of these portions and the functions they perform in a composite structure using coupled wall units is one of the subjects of our copending application Serial No. 484,682, filed January 28, 1955. It is enough to observe that they add strength and rigidity to the flanges which in a vertical wall structure serve with the flanges of adjoining units as a composite stud beam. The inner shelf of the reentrant portions 103 may be utilized to hold insulating board 101 against the web 102, and the groove formed on the outer faces of the flanges by the reentrant portion 103 can be utilized to hold a spline extending across into the registering groove of an adjoining wall unit and thus bridge the seam between the wall units.

The detachable cover element 120 consists of a shallow sheet metal channel. The web of the channel is of the same width as the web of the wall element. It results that the flanges 125 of adjoining cover elements abut each other and span the space between the inset portions 104 of the flanges of the wall element where or when such portions are provided. The webs of the cover elements are in alignment and form a continuous interior wall surface.

The edge portion of the flanges 125 of the cover are bent inwardly as at 126 and outwardly as at 127 to conform with the bent edge portions 106 and 107 of the wall elements. The outwardly bent portion 127 has a bead or ridge 128 which, when the cover is in position on the wall element, rests against the edge 107 of the wall element and holds the cover in position. These edge portions, being made of sheet metal, are sufficiently flexible to permit the cover to be pried off with relative ease and are sufficiently resilient so that when the cover is pushed into its covering position, the bead or ridge 128 will snap outwardly into holding position back of the wall element edge 107.

The interior surface of the web of the cover can be lined with insulation, preferably in insulation board form, and the inwardly bent edges 126 serve to hold this board in position against the web.

As shown in Fig. 1, the wall element 100 is an integral member made from a single piece of metal.

The wall units just described are suitable for use in forming flat wall surface for any structural purpose, and the dimensions of the unit and the thickness of the sheet metal of which it is composed can be varied according to the purpose for which the wall surface is to be used. In prefabricated housing, we have found a wall unit made of 16-gauge metal and having the following dimensions to be particularly satisfactory when used to form a vertical wall: Width of web, 16 inches; width of flanges, 3 to 4 inches.

Such a wall unit is sufficiently strong to be made in any desired length to provide conventional ceiling heights in a one-story structure and may even be made long enough to form the wall of a multi-story structure. When the wall units are used to form a ceiling surface which carries little or no load, thinner sheet material such as 22-gauge may be used.

What we claim is:

1. A wall unit comprising a first sheet metal channel with load-supporting flanges and a wall-forming web, the longitudinal edge portion of each of the flanges extending inwardly to form a planar portion substantially parallel to the web, the innermost part of each of the longitudinal edge portions being disposed towards the web at an obtuse angle to the plane of each of said planar portions, and an enclosing panel including a second metal channel having a web of substantially the same width as that of the wall-forming web, the longitudinal edge portion of each of the flanges of the second channel extending inwardly substantially parallel to its web and to said planar portion and in at least partial contact with said planar portion, each innermost part of the longitudinal edge portion of the second channel projecting away from the plane of its web parallel to said first mentioned innermost part and in abutment therewith each innermost part of the second channel having detent means in engagement with the corresponding innermost part of the first channel thereby to center and lock the channels with respect to each other.

2. A wall unit according to claim 1 wherein the detent means includes a bead which is held in engagement with the innermost part of the first channel by the resiliency of the associated longitudinal edge portion of the second channel.

3. A wall unit according to claim 1 wherein the detent means is directed over and is in engagement with the innermost edge of the corresponding innermost part of the first channel.

4. A wall unit according to claim 3 wherein the detent means includes a bead which is held in engagement with the innermost edge of the corresponding innermost part of the first channel by the resiliency of the associated longitudinal edge portion of the second channel.

(References on following page)

References Cited in the file of this patent

UNITED STATES PATENTS

1,150,594	Hale	Aug. 17, 1915	
1,224,315	Otte	May 1, 1917	
1,310,909	Hackett	July 22, 1919	5
1,487,184	Saunier	Mar. 18, 1924	
1,629,848	Thomas	May 24, 1927	
1,664,499	Baker	Apr. 3, 1928	
2,010,552	McDermott	Aug. 6, 1935	10
2,090,632	Kotrbaty	Aug. 2, 1937	
2,145,012	Nirdlinger	Jan. 24, 1939	

2,175,271
2,180,317
2,186,310
2,231,880
2,268,636
2,275,037
2,352,807
2,377,702
2,399,151
2,472,981
2,535,494

Lethly	Oct. 10, 1939
Davis	Nov. 14, 1939
Von Hoefen	Jan. 9, 1940
Buelow	Feb. 18, 1941
Becker	Jan. 6, 1942
Watter	Mar. 3, 1942
Sheldon	July 4, 1944
Lindsay	June 5, 1945
Tickle, Jr.	Apr. 23, 1946
Miller	June 14, 1949
Hult et al.	Dec. 26, 1950