Nov. 29, 1960 J. S. KIVETT ET AL 2,962,133

CONSTRUCTION UNIT HAVING MARGINAL INTERCONNECTING MEANS

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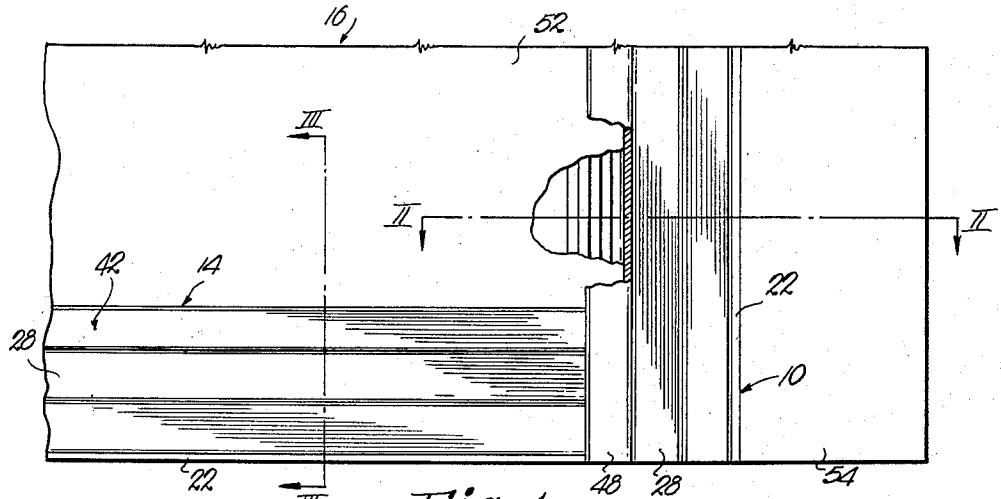


Fig. 1.

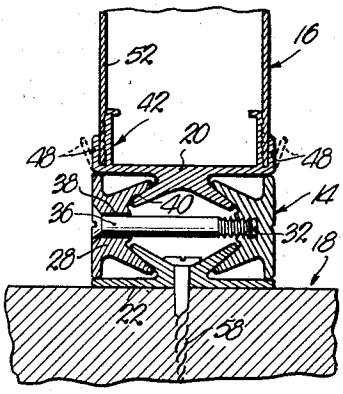


Fig. 3.

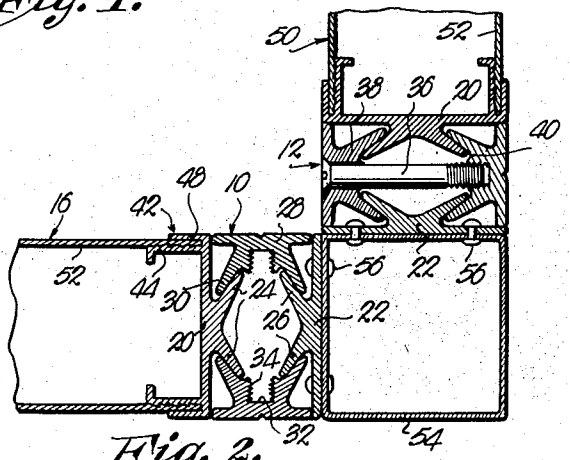


Fig. 2.

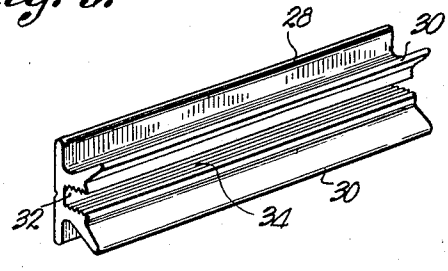


Fig. 4.

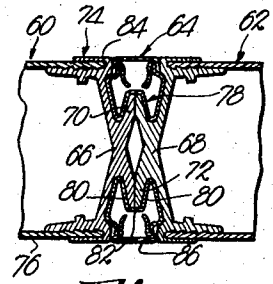


Fig. 5.

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CONSTRUCTION UNIT HAVING MARGINAL INTERCONNECTING MEANS

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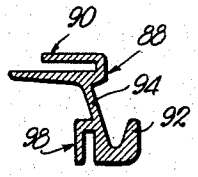


Fig. 6.

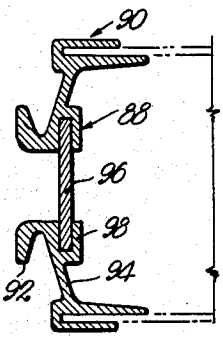


Fig. 7.

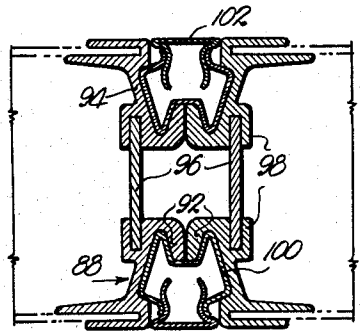


Fig. 8.

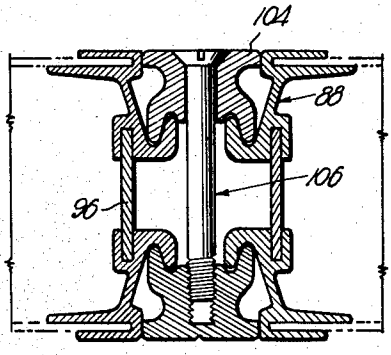


Fig. 9.

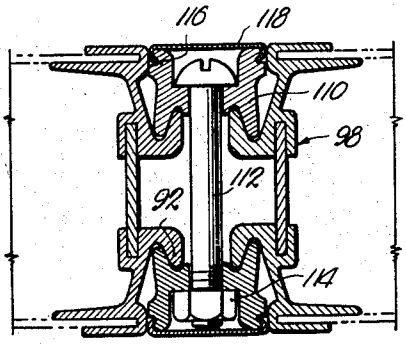


Fig. 10.

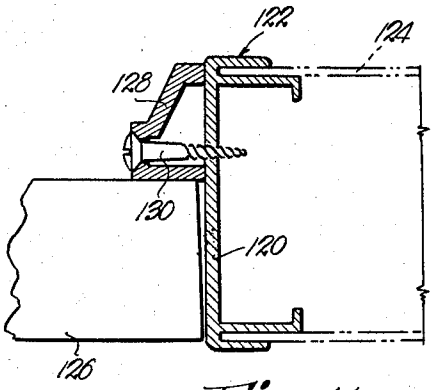


Fig. 11.

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United States Patent Office 2,962,133 Patented Nov. 29, 1960

2,962,133

CONSTRUCTION UNIT HAVING MARGINAL INTERCONNECTING MEANS

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Filed June 11, 1956, Ser. No. 590,438

1 Claim. (Cl. 189—36)

This invention relates to building construction and more particularly to prefabricated construction units adapted for interconnection at the site, the primary object being to provide marginal interconnecting means that are quickly assembled, neat and attractive in appearance, inexpensive and strong.

It is the most important object of the present invention to provide a building joint, which, when locked in place, positively holds the interconnected panels against relative movement and maintains the associated parts of the joint itself in a predetermined position which cannot be accidentally varied during assembly, thereby presenting smooth, uninterrupted surfaces substantially flush with the panels themselves.

Another important object of the instant invention is the provision of a building joint having a plurality of interconnected parts so arranged and formed as to be in relative interengagement whereby the extent of movement of each part is limited and predetermined in all directions.

Other objects include important details of construction, all of which will be made clear or become apparent as the following specification progresses, reference being had to the accompanying drawing, wherein:

Figure 1 is a fragmentary, side elevational view showing a pair of interconnected building construction units at one corner thereof and illustrating marginal interconnecting means made pursuant to the present invention, parts being broken away and in section for clearness.

Fig. 2 is a fragmentary, cross-sectional view taken on line II—II of Fig. 1.

Fig. 3 is a fragmentary, cross-sectional view taken on line III—III of Fig. 1.

Fig. 4 is a fragmentary, perspective view of one of the locking clips of the marginal interconnecting means shown in Figs. 1–3.

Fig. 5 is a fragmentary, cross-sectional view through a pair of construction units arranged in end-to-end relationship and illustrating a modified form of marginal interconnecting means made pursuant to the present invention.

Fig. 6 is a transverse, cross-sectional view through a modified form of extrusion embodying the principles of the instant invention.

Fig. 7 is a transverse, cross-sectional view through a building unit employing the extrusion shown in Fig. 6.

Fig. 8 is a transverse, cross-sectional view illustrating the manner of interconnection shown in Fig. 5 for a pair of units in the nature of that shown in Fig. 7.

Fig. 9 is a cross-sectional view similar to Fig. 8 showing the units of Fig. 8 interconnected in the manner shown by Figs. 3 and 4.

Fig. 10 is a cross-sectional view similar to Figs. 8 and 9 showing a modified form of interconnection; and

Fig. 11 is a cross-sectional view showing the manner of providing for doors, windows and other openings.

As will hereinafter become apparent, the building joint forming the subject matter of the instant invention is universally adapted for permitting interconnecting of construction units in end-to-end relationship and with respect

to floors, ceilings and other parts of virtually any type of building to be constructed through the use thereof.

Accordingly, in the form of the invention depicted by Figs. 1 to 4 inclusive, there is shown a pair of joints or marginal interconnecting means broadly designated by the numerals **10** and **12** in Figs. 1 and 2 capable of forming a corner, and in Figs. 1 and 3, a similar unit **14** is shown as the same is employed for attaching a wall **16** to a floor **18**. Inasmuch as the joints **10**, **12** and **14** are substantially identical, the same numerals will identify like parts.

Each joint consists of a pair of spaced, elongated, parallel plates **20** and **22** provided with a pair of wings **24** and **26** respectively on the proximal innermost faces thereof. Wings **24** and **26** which are integral with the corresponding plates **20** and **22** are coextensive in length with the latter and converge relatively toward the longitudinal axes of the plates **20** and **22**.

Plates **20** and **22** are interlocked and thereby held against separation, as well as movement toward each other, by a pair of identical clips **28**, each of which is in turn provided with a pair of relatively converging fingers **30** on the innermost face thereof adapted to embrace the wings **24** and **26** as seen in Figs. 2 and 3. Each clip **28** is provided with an elongated groove **32** between the fingers **30** thereof which is internally threaded as at **34** throughout the length thereof, it being understood that the clips **28**, fingers **30**, grooves **32** and threads **34** are all coextensive in length with the plates **20** and **22** and with the wings **24** and **26**.

Take-up means is provided for drawing the clips **28** toward each other into interlocking relationship to the wings **24** and **26**, consisting of a plurality of bolts **36** which pass through openings **38** in one of the clips **28** and into threaded engagement with the groove **32** of the opposed clip **28**.

It is seen that the clips **28** are disposed between the plates **20** and **22** and, therefore, the extent of inward movement of the latter is limited as the clips **28** are drawn toward each other by taking up the bolts **36**. By the same token, the extent of movement of the clips **28** toward each other is limited by shoulders **40** formed adjacent each finger **30** respectively for receiving the apex edges of the wings **24** and **26**. Accordingly, when the clips **28** are drawn tightly against the wings **24** and **26**, plates **20** and **22** will not only be held in parallelism, but the clips **28** will likewise be parallel and flush with the outermost longitudinal edges of plates **20** and **22**.

At least one of the plates, namely, plates **20** in Figs. 1–3, is provided with a pair of panel-receiving clamps **42**, each of which consists of an innermost jaw **44** and an outermost jaw **48**.

Walls **16** and **50** each consists of a pair of panels **52** that are clamped in place in parallel relationship to the plate **20** by the gripping action of jaws **44** and **48** thereon.

It is contemplated that the entire joint be made from a lightweight, yet relatively strong bendable material such as aluminum and, therefore, as illustrated in Fig. 3 of the drawing, the outermost jaws **48** are bent inwardly against the panels **52** after the same have been inserted in place between the jaws **44** and **48**.

Although not illustrated in the drawing, it is manifest that both plates **20** and **22** might well be provided with clamping means **42**, thereby permitting interconnection of the double-wall building units in end-to-end relationship. However, in Figs. 1–2, the plates **22** are devoid of such clamping means **42** so that the same may be attached to a corner column **54** by suitable fastening means such as rivets **56**.

Similarly, by virtue of the fact that plate **22** is flat on its outermost face, it is adapted to be mounted direct-

ly to floor 18 by fasteners such as nails 58 driven therethrough between the wings 26 thereof.

A pair of dual panel walls 60 and 62 are shown interconnected in end-to-end relationship as aforementioned in a slightly modified form of joint 64 shown in Fig. 5 of the drawing. It consists of a pair of identical plates 66 and 68 that are provided with relatively converging wings 70 and 72 respectively on the inner faces thereof. Each plate 66—68 is also provided with a pair of clamps 74 substantially identical to the clamps 42 for receiving the panels 76 of the building units or walls 60 and 62.

The plates 66 and 68 are, however, interlocked through use of spring clips 78 therebetween and each provided with a pair of relatively converging fingers 80 that embrace the wings 70 and hold the latter in interengagement. Fingers 80—80 are joined by a strip 82 against which the outermost longitudinal edges of the wings 70 abut when the clips 78 are snapped into place between the plates 66 and 68.

Clips 78 are held against outward movement or separation by virtue of shoulders 84 on the plates 66 and 68 and clips 78 are held in locking relationship to the plates 66 and 68, as well as the wings 70 thereon by elongated escutcheon plates or strips 86. It is here again understood that the strips 86 are coextensive in length with the plates 66 and 68 and the clips 78 may likewise extend the full length of the joint or be subdivided into a plurality of separate units.

An elongated extrusion 88, shown in Fig. 6 of the drawings, is provided with clamping means 90 similar in nature to clamps 42 and 74 previously described, and a wing 92 on plate section 94 that is comparable to wings 24—26 and 70—72.

When a pair of extrusions 88 are employed in the manner shown in Figs. 7–10, they are joined by connecting strips 96 which are held in place through the medium of bifurcated clamps 98 integral with plates 94.

It is seen in Fig. 8 that clips 100 and plates 102, similar in nature to clips 78 and plates 86 of Fig. 5, may be employed to interconnect wings 92 of extrusion 88. Alternately, clips 104 and take-up means 106, similar to Figs. 1–3 may be employed to join extrusion 88 as seen in Fig. 9.

In Fig. 10 there is shown a modified take-up means for joining clips 110, consisting of bolts 112 passing through both clips 110 and provided with nuts 114. Clips 110 are also modified to present grooves 116 for receiving plates 118 which hide the bolts 112 and nuts 114.

Plate 120 of Fig. 11 is similar to plate 22 shown in Figs. 1–3 in that it is provided with clamps 122 for panels 124, but is devoid of wings 26, thereby adapting it for use in presenting a frame for a closure 126, such as a door or window. A stop 128 for closure 126 may be secured directly to the plate 120 as by use of suitable fasteners 130.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

A building joint adapted for disposition between two sections of a wall in interconnecting relationship thereto, each section having a pair of spaced, parallel panels, each panel having an elongated edge, said joint comprising a pair of spaced, elongated units, one for each section respectively and coextensive in length with said edges; a pair of spaced, elongated clips, coextensive in length with said units, and interconnecting the units therebetween; and take-up means between said units and spanning the distance between the clips in interconnecting relationship thereto, each unit including a pair of extrusion members, one for each corresponding panel respectively, and a strip interconnecting the members therebetween, each member including a longitudinal plate having a first, integral strip-receiving clamp, an integral wing adjacent the first clamp, and a second, integral clamp in opposed relationship to the wing and the first clamp, and adapted for attachment to a corresponding panel, each clip spanning the distance between a pair of corresponding panel-receiving clamps, and each having a pair of opposed, outwardly diverging, integral fingers, each finger being interlocked with a corresponding wing, said take-up means including a plurality of spaced, threaded bolts between the strips and passing through one of the clips, the other clip having a longitudinal groove provided with opposed threads throughout the length thereof receiving the threads of the bolts, said wings being angularly disposed complementally with the fingers which they engage whereby the units are drawn toward each other in one direction and the clips are drawn toward each other in another direction when the bolts are taken up, said clips having shoulders seating the fingers to maintain the strips parallel and the outer faces of the clips flush with the outer faces of the panel-receiving clamps when the latter are held against the clips by said bolts.

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