Sept. 8, 1936. G. D. KELLOGG 2,053,482

CORNER PORTION OF AN ASSEMBLY WALL

Filed April 21, 1934

Fig. 3.

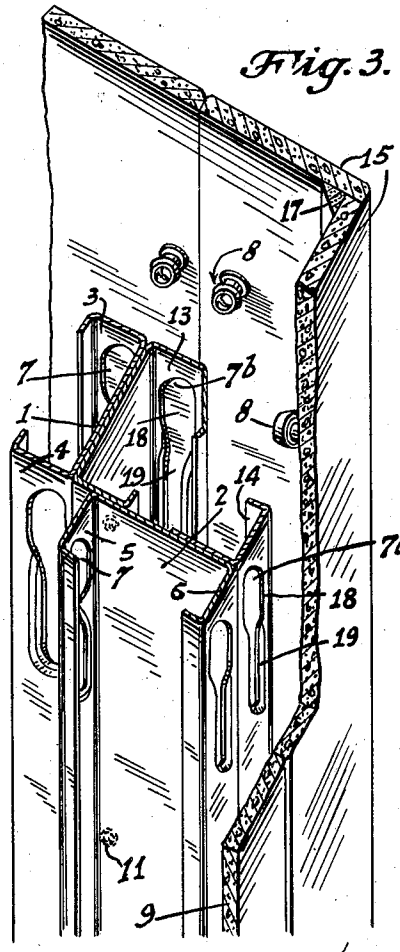


Fig. 1.

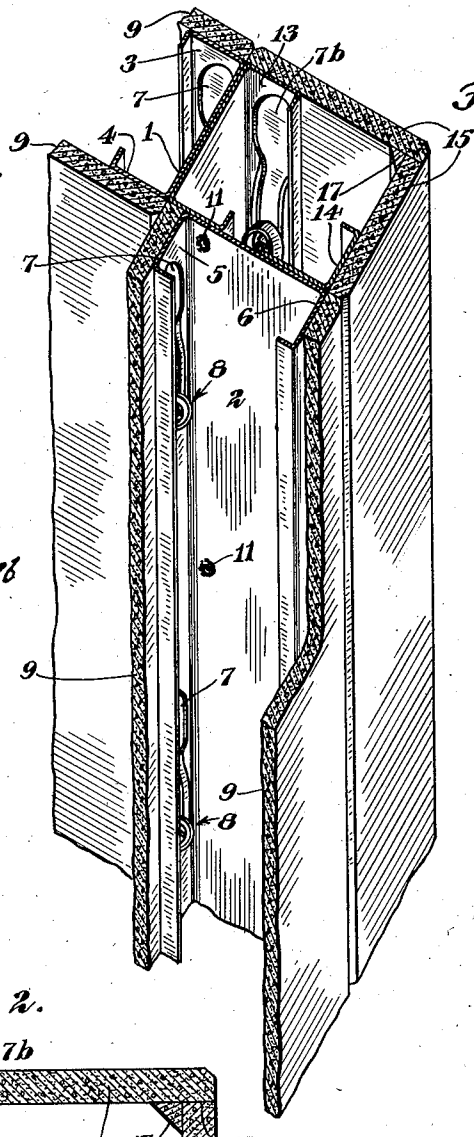
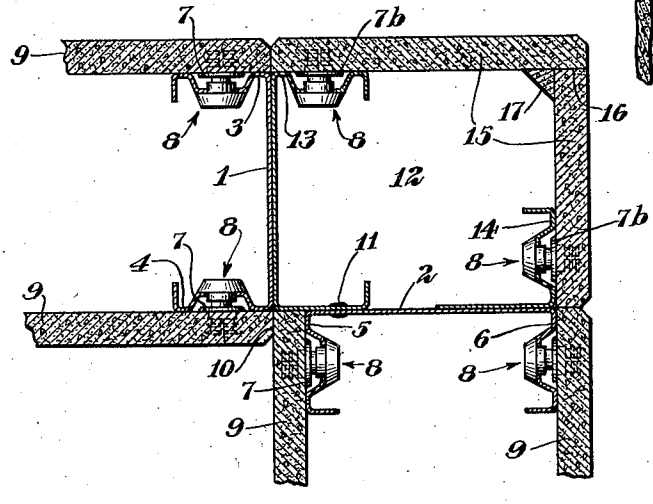


Fig. 2.



INVENTOR.
George D. Kellogg.
BY D. N. Halstead
ATTORNEY

Patented Sept. 8, 1936 2,053,482

UNITED STATES PATENT OFFICE

2,053,482

CORNER PORTION OF AN ASSEMBLY WALL

George D. Kellogg, Pelham Manor, N. Y., assignor to Johns-Manville Corporation, New York, N. Y., a corporation of New York

Application April 21, 1934, Serial No. 721,685

12 Claims. (Cl. 72—16)

This invention relates to the corner portion of an assembled wall and, particularly, to a stud and corner closing element for use therefor.

In assembling partitions or walls of buildings from preformed and presized units, for example, it is customary to form walls comprising facing elements supported on opposite sides of studs of metal or the like, frequently to form a hollow wall.

It is an object of the present invention to provide a corner assembly at the meeting place of two such walls and to preserve in the corner portion the spacing from each other of the facing elements of the two sides of the wall, and, suitably, also, overall lightness of weight of the structure and other desirable properties that are characteristic of the main portion of the walls. Other objects and advantages will appear from the detailed description that follows.

In the preferred embodiment, the invention comprises walls meeting at a corner, a stud having elements adapted to support the spaced facing sheets of one of the said walls, having other elements extending in planes approximately at right angles to the planes of the corresponding portions of the first-mentioned elements of the stud and being adapted to support the facing sheets of the other of the said walls. In one embodiment the invention comprises a corner-closing member enclosing the space formed at the outside portion of the corner and means for supporting the corner-closing member and permitting ready engagement or disengagement upon or from the corner post or stud.

The invention is illustrated in the attached drawing forming a part of this specification.

In the drawing,

Fig. 1 is a perspective view, with parts broken away for clearness of illustration, of a wall assembly constructed in accordance with the invention;

Fig. 2 is a horizontal sectional view of the assembly shown in Fig. 1; and

Fig. 3 is a view similar to that of Fig. 1 but showing the corner member disengaged from the stud.

There is shown a stud having web elements 1 and 2 and panel supporting elements 3, 4, 5 and 6. These panel supporting elements are suitably in the form of flanges extending, one pair each, approximately at right angles to each of the side edges of the web members, in direction away from the outside of the corner, that is, the corner in the finished assembly. The flanges are provided with slots 7, constituting means for engaging the panels or facing elements, as, for example, by means of the pin or fastener assemblies 8. These fastening members are secured each at one end in a facing element 9 and at the other end in a slot 7. The said flanges comprise each a plurality of slots, spaced vertically along the stud and providing means for engaging each a pin 8.

The facing elements are composed of a suitable material, as, for example, of compressed and hardened sheets of asbestos and Portland cement. These facing elements should be rigid and strong, in order to provide adequate strength and shape retaining properties to the finished assembly.

The studs are composed preferably of iron or steel or the like and are secured at top and bottom by any suitable means that form no part of the present invention and are, therefore, not illustrated.

The several said flanges of the stud are established in fixed relationship to each other, so that facing elements constituting the inside of the corner portion of the wall and being secured to the appropriate flanges on the stud are caused to contact with each other, as illustrated at 10, in Fig. 2.

The stud may comprise an approximately I-shaped member including a web element 1 and flanges extending laterally and in opposite directions from both side edges thereof, a modified I-type member including a web element 2, flanges 6 and 14 extending laterally and in opposite directions from a side edge of the web element and a flange 5 extending laterally in one direction only from the other side edge of the web element, and means securing a flange of the said approximately I-shaped member to the web element of the said I-type member at a position 11 adjacent to the edge having the said flange 5 extending therefrom in one direction only.

I have used to advantage a composite stud including two sections each representing originally separate studs, in which composite appropriate portions of the two sections are spot welded together, at positions 11, say not over 12 inches apart. In such a composite stud, the face of one flange of one section, adjacent to the position of welding, is conveniently in a plane parallel to the plane of the web element of the other section and spaced or offset therefrom at a distance that is equal, approximately, to the width of the facing element to be secured to the said flange, to permit the abutment at 10 of panels supported on the two studs, as illustrated. Also, the corresponding portions of one section of the stud extend in

planes approximately at right angles to the planes of the corresponding portions of the other section, whereby facing elements secured to one section, in spaced relationship corresponding to the thickness of one of the walls, are caused to lie approximately at right angles to corresponding facing elements of the other wall, to give a right-angled corner. By varying the angles between the direction of extent of the corresponding flanges of the two sections, various angles of meeting of the walls may be established.

In the two hollow walls meeting to form a corner, the vertical edges of the facing elements on the outside of the wall terminate practically in line with the termini of the inside facing elements. In this manner the flanges **13** and **14** and the web elements **1** and **2** are caused partly to define an open corner space indicated generally at **12**, Fig. 2. For most purposes, it is desirable to enclose this corner space and to preserve over the corner the same general appearance and properties that are characteristic of the remainder of the walls. When closed, this corner space provides a convenient conduit for electrical or other lines that are to be concealed in the finished structure.

For closing the corner space, there are provided flanges **13** and **14** extending, respectively, at an angle, usually approximately a right angle from the outside edge of the web members **1** and **2** and in direction towards the outside of the corner, that is, away from the flanges **3** or **6**. The elements **13** and **14** may have shape and construction identical with the elements **3** and **6**, including the slots **7***b*, and may support facing elements in the same manner. To the elements **13** and **14** there is secured the corner-closing member **15**. This member may consist of two narrow strips or panels, generally similar to the wider panels **9**, meeting at the corner **16**, and secured together in part by a corner brace **17**. This brace may be cemented or screwed by conventional means to the backs of the two separate panels constituting the closing member **15**.

The fastener assemblies **8** project some distance from the inside surfaces of the panels. In view of this and of the fact that the corner piece **15** is rigid, special provision is made to permit ready engagement or disengagement of the corner piece. Thus, when the corner piece is first brought nearly into position for engagement, as illustrated, for example, in Fig. 3, both sides of the piece will be spaced from the flanges **13** and **14**, respectively. Unless special features of construction are used, therefore, this would cause the fastener assemblies **8** to be offset from the desired positions with respect to the slots **7***b*, with consequent difficulty or impossibility of engagement. This difficulty has been avoided by establishing the positions of the wide portions of the several slots **7***b*, in flanges **13** and **14**, respectively, and the position of the corresponding fastening members **8** in the two faces of the corner-closing member **15** at the same elevation, at the time of engagement, so that the several fastening members **8** may be engaged simultaneously in the appropriate slots extending vertically along the flanges **13** and **14**.

A second feature of construction also is used jointly with the first feature, in solving the difficulty, namely, the wide or entrance portion **18** of the slots **7***b* extend beyond the lower narrow portion **19** of the slots, in direction towards the outside of the corner assembly, to a distance approximately equal to that required to permit the entrance of the fastening members into the said wide portions of the slots in the flanges **13** and **14**, simultaneously. This novel extension of the wide portion to the side of the narrow portion is suitably somewhat greater than the distance by which the innermost part of the fastening members **8** extend inwardly from the inside surfaces of the corner-closing panel member **15**.

The assembly described is convenient to make, particularly, when all the parts are preformed and presized. When constructed, for example, of a steel stud and rigid, strong facing panels, of the type of those described, the corner is resistant to the passage of sound therethrough to the extent that the wall panels are not easily set in vibration by sound incident thereupon. The corner may confine an air space adapted to be filled with a material of the type of mineral wool or other similar lightweight fibrous heat insulating and sound absorbing material.

The two walls meeting at an angle in the structure described coact with each other whereby each wall tends to reenforce and assist in establishing the position of the other wall. Because of the overlapping of the panels as shown at **10**, a moderate change in dimension of the walls such as might be caused by change in width of the inside facing elements **9**, under changing conditions of environment, does not cause the opening of a crack or cause excessive compression at the corner between the said panels. Furthermore, the corner space closing member **15**, serves to brace the outside portions of the stud and prevent such twisting and turning thereof as might endanger the shape of the composite stud, the security of the spot welding of the two sections together, or the predetermined spacing between the panels constituting the facing elements of the two sides of the walls.

While the invention has been described as using upstanding studs and panels, it will be understood that there may be other positions of the several component parts. Thus, the term "stud" is meant to include beams that may be used, for example, in a ceiling.

The details that have been given are for the purpose of illustration, not restriction, and variations within the scope of the appended claims may be made without departing from the spirit of the invention.

What I claim is:

1. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner, a composite stud including means supporting the faces of one wall in predetermined spaced relationship to each other, and means, secured to the first mentioned means, supporting the faces of the other wall in predetermined spaced relationship to each other, the combination of the said means holding in contacting relationship the edge portions of the facing elements constituting the inside of the said corner.

2. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner, preformed upstanding panels constituting the facing elements of the two walls, means supporting the facing elements of one wall in predetermined spaced relationship to each other, and means, secured to the first mentioned means, supporting the facing elements of the other wall in predetermined spaced relationship to each other, the combination of the said means holding in contacting relationship the edge portions of the facing elements constituting the inside of the said corner

and the outside facing elements of the two walls terminating at their vertical edges adjacent to the corner substantially in line with the said facing elements at the inside of the corner.

3. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner, preformed upstanding panels constituting the facing elements of the two walls, means supporting the facing elements of one wall in predetermined spaced relationship to each other, and means, secured to the first mentioned means, supporting the facing elements of the other wall in predetermined spaced relationship to each other, the outside facing elements of the two walls terminating at their vertical edges adjacent to the corner substantially in line with the said facing elements at the inside of the corner, whereby there is partly defined an open corner space, and a rigid member secured in position and closing the said corner space.

4. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner; rigid sheets constituting the facing elements of the two walls; a preformed composite stud including two united sections each having a web element and flanges extending at approximately right angles from opposite side edges of the web element and contacting with the inside surfaces of the facing elements of one of the said walls, the web element and flanges of each said section extending in a plane approximately at a right angle to the plane of the corresponding portion of the other section; and means securing the facing elements to the said flanges.

5. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner; rigid sheets constituting the facing elements of the two walls; a composite stud including two sections each having a web element and flanges extending, in direction away from the outside of the corner, at approximately right angles from opposite side edges of the web element and contacting with the inside surfaces of the facing elements of one of the said walls, the web element and flanges of each said section extending in a plane approximately at a right angle to the plane of the corresponding portion of the other section; means securing the said facing elements to the said flanges; means securing the said sections of the stud to each other in fixed relationship adapted to cause contact between the edge portions of the inner facing elements secured to flanges on the two sections of the stud and forming the inside of the corner; flanges extending, from the said web members at the side edges thereof, in direction towards the outside of the corner, partly defining an open corner space, and being adapted to support a corner-space-closing member; and a member secured to the last mentioned flanges and closing the corner space.

6. A building structure comprising in combination two walls having each spaced apart faces and meeting at an angle to form a corner; preformed panels constituting the facing elements of the two walls; a composite stud having two sections each having a web member and flanges extending, in direction away from the outside of the corner, at approximately right angles from opposite side edges of the web element and contacting with the inside surfaces of the facing elements of one of the said walls, the web element and flanges of each section extending in a plane at approximately a right angle to the plane of the corresponding portion of the other section; means securing the facing elements to the said flanges; means securing the said sections of the stud in fixed relationship to each other, adapted to cause contact between the edge portions of the inside facing elements secured to flanges on the two sections and forming the inside of the corners; flanges extending, from the said web members at approximately a right angle from the side edges thereof, in direction towards the outside of the corner, partly defining an open corner space, and being adapted to support a corner-space-closing member; and a member including faces meeting at approximately a right angle secured to the said last mentioned flanges and closing the corner space.

7. A wall corner assembly comprising in combination a preformed rigid corner-closing member including two faces meeting at approximately a right angle to form a corner, fastening members projecting from the inside surface of the said faces, a stud, two elements of the said studs adapted to contact, respectively, in conforming relationship with the inside surfaces of the said faces and provided with slots adapted each to engage simultaneously one of the said fastening members.

8. In an assembly as described in claim 6, the improvement comprising studs with the flanges, extending towards the outside of the corner, provided with slots having an entrance portion, and fastening members extending inwardly from the inside faces of the corner-closing-member and adapted to be engaged in the said slots, the entrance portion of each of the said slots being at the same elevation as the fastening member to be entered therein, at the time of entrance.

9. A preformed composite stud adapted for use in a wall corner assembly of the type described comprising two sections including each a web element, a flange extending from a side edge thereof, in direction away from the outside portion of the corner, and adapted to hold a facing element of a wall at the inside of the corner, flanges extending to both sides of the other side edge of the web element and adapted to hold sheet material constituting the facing elements of the outside portions of the corner assembly.

10. A preformed composite stud adapted for use in a wall corner assembly of the type described comprising two sections including each a web element, a flange extending from a side edge thereof, in direction away from the outside portion of the corner, and adapted to hold a facing element of a wall at the inside of the corner, flanges extending to both sides of the other side edge of the web element and adapted to hold sheet material constituting the facing elements of the outside portion of the corner assembly, the flanges of the two sections extending towards the outside portion of the corner being provided with means for engaging fastening members of the panels to be supported on the said flanges and the said means being disposed each at the same elevation as the fastening member to be engaged thereby.

11. A preformed stud adapted for use in a wall corner assembly of the type described comprising an approximately I-shaped member including a web element and flanges extending laterally and in opposite directions from both side edges of the said web element, a modified I-type member including a web element, flanges extending later-

ally and in opposite directions from a side edge of the web element and a flange extending laterally in one direction only from the other side edge of the web element, and means securing a flange of the said approximately I-shaped member to the web element of the said I-type member at a position adjacent to the edge having the said flange extending therefrom in one direction only.

12. A preformed stud adapted for use in supporting a facing element in a wall corner assembly of the type described comprising an approximately I-shaped member including a web element and flanges extending laterally and in opposite directions from both side edges of the said web element, a modified I-type member including a web element, flanges extending laterally and in opposite directions from a side edge of the web element and a flange extending laterally in one direction only from the other side edge of the web element, and means securing a flange of the said approximately I-shaped member to the web element of the said I-type member at a position adjacent to the edge having the said flange extending therefrom in one direction only, the last-mentioned flange extending in a plane approximately parallel to the plane of the web element of the said approximately I-shaped member and being offset therefrom at a distance approximately equal to the width of the facing element to be secured to the said flange.

GEORGE D. KELLOGG.