

Dec. 30, 1941.

H. HASENBURGER ET AL

2,268,147

BUILDING WALL CONSTRUCTION

Filed April 4, 1940

2 Sheets-Sheet 1

Fig. 1.

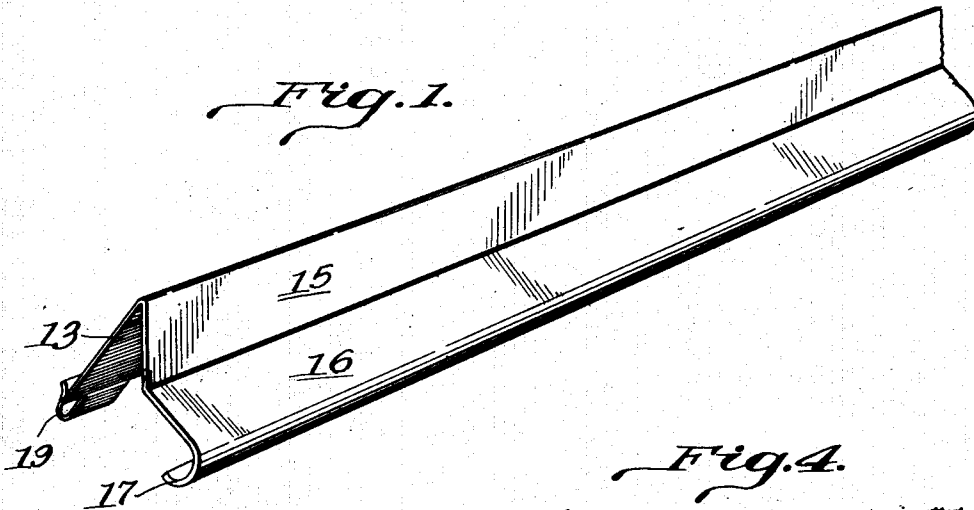


Fig. 4.

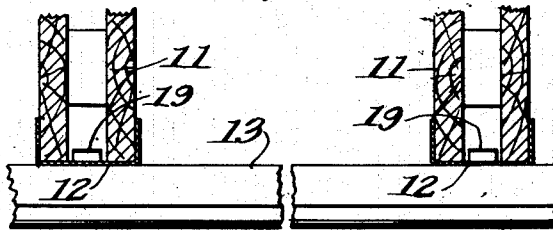


Fig. 2.

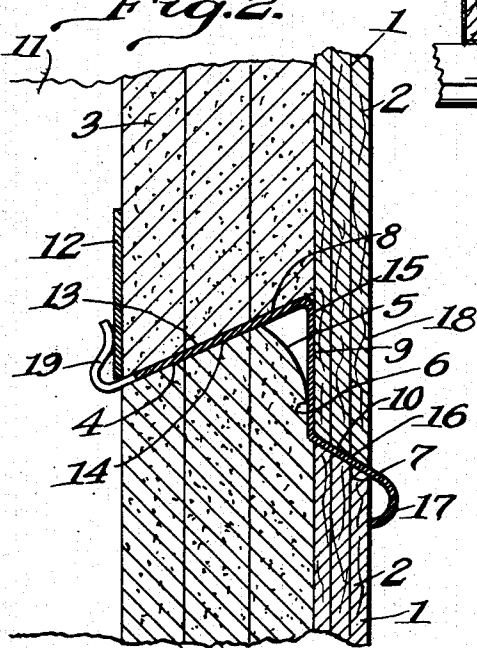
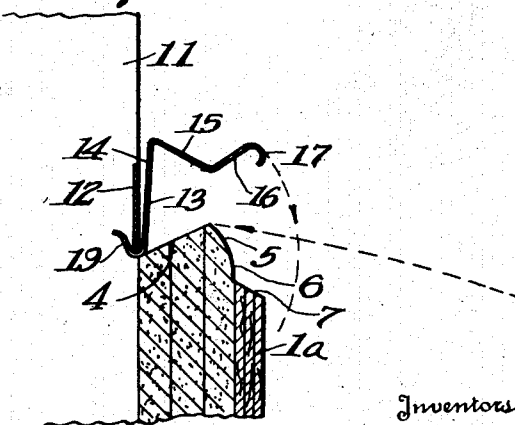


Fig. 3.



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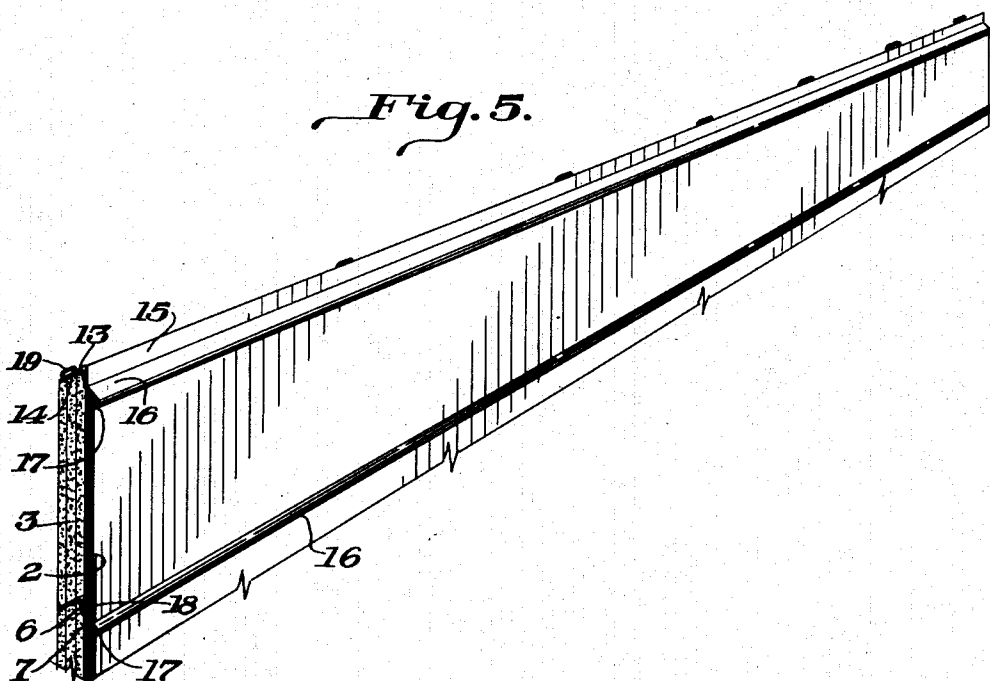
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2 Sheets-Sheet 2

Fig. 5.



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BUILDING WALL CONSTRUCTION

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Application April 4, 1940, Serial No. 327,841

10 Claims. (Cl. 20-4)

This invention relates to wall construction for buildings, having particular reference to walls of the type composed of a plurality of factory fabricated panel units of definite dimensions and configuration, the general object of the invention being to provide improved means for facilitating the assembly and uniting of such panel units in wall-producing order, whereby to produce an exterior or interior building wall at low constructional costs, one possessing substantial mechanical strength and of improved external appearance.

Another object of the invention resides in the provision of an improved external wall structure for frame type buildings, wherein the wall structure is composed of a plurality of preformed panels or siding units arranged in superposed vertical order, and wherein improved securing means are provided between the adjoining longitudinal edges of each pair of such units for the purpose of quickly uniting such units in secured association with an inwardly disposed building frame, the fastening means being of such character as to enable the panel or siding units to be disassembled when desired without injury and perfectly intact for further use.

Still another object of the invention rests in the provision of an exterior building wall composed of prefabricated units which, when in assembled order, provide effective protection for the interior of a building against the transmission therethrough of moisture and heat or cold.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawings, wherein:

Fig. 1 is a perspective view of one of the metallic fastening strips employed by the present invention in uniting preformed panel units;

Fig. 2 is a vertical sectional view taken through the adjoining meeting edge portions of a pair of panels formed in accordance with the present invention and disclosing in transverse cross section the metallic fastening strip used in securing such units in connection with an associated building frame;

Fig. 3 is a similar view disclosing the position of the fastening strip when a panel unit is being mounted in wall-forming order;

Fig. 4 is a horizontal sectional view taken through a pair of building frame studs and disclosing the cross bars of such studs with which the siding panel units are detachably connected;

Fig. 5 is a perspective view of a wall panel having a securing strip coextensive therewith, this panel being illustrated in superposed rela-

tion with a second panel, a securing strip being disposed between the panels.

Referring more particularly to the drawings, the present invention utilizes a wall structure composed primarily of preformed, factory fabricated, wall panels. In the form of the invention illustrated, these panels are used as siding members in an exteriorly disposed building wall. It will be understood, however, as the features of the invention are more fully developed, that the wall structure may be used within the interior of the building, for forming the side walls of a room, or ceilings thereof, as well as in exterior capacities, and such uses are herein contemplated.

When used as the exterior siding of a building, each of the panels in front elevation possesses an elongated rectangular construction, the exact dimensions of which may be varied in accordance with different types of buildings. However, it is preferable that each unit should be of such size and weight that it can be readily handled or packed for shipment. A preferred construction for exterior walls consists in forming each panel unit to comprise laminated, dense, water impervious and weather resisting outer layers 2. These layers may be formed, for example, from plywood or molded mineral materials. To these outer layers, each panel is also formed on its inner portion with one or more layers 3 of thermal insulation. Such insulation may be composed of porous, gas expanded ceramic materials, wood pulp, asbestos, suitably compressed mineral wools, or other applicable insulation.

The outer and inner layers 2 and 3, respectively, of each panel are suitably joined to produce a unitary construction of definite form and configuration. It is obvious that when used for partition or room walls, it is within the scope of the invention to omit the employment of the thermal insulating layers, if desired.

The upper longitudinal edge portion of each panel is formed to include a rearwardly and downwardly inclined surface 4, which terminates at its forward edge in an arcuate, downwardly directed surface 5. The latter surface, in turn, terminates at the lower part thereof in a substantially vertical surface 6 which joins with a downwardly and forwardly extending surface 7, formed along the upper longitudinal edges of each of the outer layers 2, the surfaces 6 and 7 forming a shoulder or seat for a purpose hereinafter set forth.

The lower longitudinal edge portions of each

panel unit are of mating and somewhat similar configuration. Thus, as shown in Fig. 2, the lower longitudinal edge surface of the layers 3 of each panel unit is downwardly and rearwardly sloped as at 8 to conform with the inclination of the surface 4. The surface 8 terminates forwardly in a downwardly directed vertical wall 9, which is disposed approximately to the arcuate surface 5, the wall or surface 9 terminating at its lower edge in a downwardly and forwardly inclined surface 10, the latter being spaced from the complementary surface 7.

To secure these panel units in superposed assembled relationship to constitute a building wall, the same are supported in connection with relatively spaced vertical studs 11, forming a part of the associated building frame. Each of these studs at vertical intervals, spaced apart a distance corresponding to the height measurement of each of the panels 1, is provided with transversely extending metallic bars 12, stationarily carried by said studs. It is obvious that the bars 12 could be replaced by continuous rails secured to the stud and provided with apertures spaced longitudinally thereof in conformity to the width of the siding. If desired, the stud might be formed of metal and provided with integral bars spaced similarly to the bars 12. Detachably connected with these stud bars, for holding the panel units in assembled relation, is a plurality of metallic fastening strips 13. These strips may be formed from stamped sheet metal, extruded aluminum alloys or other suitable materials such as brass, copper or the like, so that said strips will possess requisite mechanical strength and resistance to oxidation, corrosion or other forms of elemental attack.

In transverse cross section, each strip conforms in configuration to the meeting edges of the wall units 1. Thus, as shown particularly in Fig. 2, each strip includes a body portion 14 which possesses the angularity of the panel surfaces 4 and 8. The body portion is coextensive transversely and longitudinally with the surfaces 7 and 8 and terminates at its forward edge in a downwardly directed vertical leg 15, which extends to the shoulder formed by the meeting portions of the surfaces 6 and 7. The lower portion of the leg 15 terminates in an outwardly and downwardly directed flange 16, the latter possessing the inclination of and engaging with the inclined panel surface 7. Outwardly, the flange 16 terminates in a rounded or beaded edge 17, which is shaped to facilitate the shedding of water and to prevent moisture from seeping inwardly between the surfaces 7 of the panel and the lower surfaces of the leg 15 of the fastening strip. While the edge 17 is rounded or curled to constitute a bead, it is apparent that it could be extended straight downwardly so as to overlap the upper edge of the panel beneath the strip and prevent water from entering between the layers of the panel. This feature is further attained by the depending extension 18 formed at the lower edge portions of each of the outer layers 2 of the panels 1, the latter overlapping the outer surfaces of the leg 15 of the fastening strip.

In Fig. 2, the extension 18 has been illustrated as engaging the upper surface of the flange 16 on the strip. A slight gap or space could be permitted at this point without affecting the appearance or water shedding characteristics of the assembly. It would be necessary, however, to have the extension project a sufficient distance downwardly over the leg 15 to prevent moisture from

finding its way between the body portion 14 of the strip and the wall panel resting thereon.

It will be seen that because of the inclined body portion 14 of each of the fastening strips, a panel unit seated thereon is, on account of its weight, forced inwardly toward engagement with the frame studs 11. These forces are also used in maintaining firm engagement between the inner surface 9 of each of the extensions 18 and the outer surface of the fastener leg 15.

The lower inner edge of the body portion 14 of each strip at longitudinal intervals corresponding to the spacing of the studs 11, is formed with inwardly directed hook-shaped fastening tongues 19, which are used to engage the inner surfaces of the cross bars 12 of said studs to prevent outward and lateral movement of the fastening strips when the latter are operatively positioned between a pair of panel units in the manner shown in Fig. 2. The tongues 19 have fulcrumed engagement with the lower edges of the cross bar 12, permitting the fastening clips to be rocked about the lower edges of the bars 12 after the manner disclosed in Fig. 3. Thus, in the assembling of the wall units, the fastening strips may be elevated, as shown in Fig. 3, permitting the wall panel 1a to be positioned against the studding. The strips are then rocked downwardly into seated engagement with the upper edge surfaces of the panel unit 1a, such seated engagement being disclosed in Fig. 2. The next panel unit may then be applied to the lower fastened unit and these operations repeated throughout the height of the wall formed thereby.

It will be noted that the construction disclosed permits the wall panels to be readily and quickly erected without the use of tools, conventional nailing, or other fastening elements commonly employed in the formation of building walls. During the assembly and fastening of the wall panels, nothing is done to mar or disfigure the walls, so that in the event the wall structure is subsequently dismantled, each part thereof remains in a completely intact condition and may be again usefully employed for similar capacities.

The wall formed by the present invention possesses adequate mechanical strength for the various uses to which it is placed and, in addition, presents a pleasing external configuration which adds to its desirability in house or other types of building construction. It will also be obvious that the construction here described permits a building wall to be erected or assembled by unskilled artisans in a short space of time, thus providing an economy in building construction which is quite marked over conventional types of external building walls.

While a preferred form of the invention has been set forth in detail, it will be apparent to those skilled in the art that the same is subject to considerable variation or modification both in choice of materials and in the functional design of the associated parts. Therefore, we claim as our invention, all such modifications falling within the scope of the following claims.

What is claimed is:

1. Wall construction comprising vertical studs having the front portions thereof formed with openings, a plurality of horizontally extending relatively superposed wall-forming panels having their inner surfaces engaged with said studs, a single open-ended metallic securing strip disposed between the adjoining longitudinal edges of each pair of said panels, said strips being coextensive with the length of said panels and ex-

tending from the front to the rear surfaces thereof, and hook-shaped tongues formed with the inner portions of said strips and detachably connected with said studs through the openings formed in the front thereof.

2. Wall construction comprising vertical studs having the front portions thereof formed with spaced transverse bars, a plurality of horizontally extending relatively superposed wall-forming panels having the inner surfaces thereof engaged with said studs, and a single open-ended metallic securing strip removably positioned between the adjoining longitudinal edges of each pair of the panels, said strips being coextensive with the length of said panels and having hook-shaped tongues formed with the inner edges thereof for detachable engagement with said stud bars.

3. Wall construction comprising vertical studs, a plurality of horizontally extending relative superposed wall-forming panels having the inner surfaces thereof placed against said studs, said panels having the longitudinal meeting edges thereof inclined downwardly and rearwardly with respect to the horizontal, metallic securing strips coextensive with the length of said panels and disposed between and conforming with the configuration of the longitudinal meeting edges of said panels, means formed with the inner edge portions of said strips for detachably connecting the same with said studs, and flange means provided with the outer edge of said strip for overhanging the upper and outer portion of the panel immediately beneath said strip.

4. Wall construction comprising a plurality of preformed panel units formed for placement in a common plane, the adjoining edge portions of each pair of said panel units being inclined and overlapped, metallic fastening strips coextensive with the length and width of the edges of said panel units and positioned between the adjoining longitudinal edge portions thereof to hold said units in wall-forming order, means formed with the inner edge portions of said strips for detachably securing the latter and the panel units connected therewith in engagement with an associated supporting base, and means formed with the outer edges of said strips for overlapping the exterior edge portion of one of the adjoining panels.

5. Wall construction comprising a plurality of preformed panel units adapted to be arranged side by side in a common plane, the adjoining complementary edges of each pair of panel units having surfaces disposed at an acute angle with respect to a plane perpendicular to the outer surfaces of said units, a fastening strip positioned between the angularly extending adjoining edge portions of said units, tongues formed with the inner edge of said strips for detachable engagement with an associated supporting frame against which said panel units are placed, and shoulder-forming flanges provided on the forward edge portions of each of said strips for supporting and retaining said panel units in mounted wall-forming order.

6. Wall construction comprising a supporting

frame, a plurality of preformed wall-forming panels having their inner surfaces engaged with said frame, said panels when disposed in vertical order having their adjoining longitudinal edge portions rearwardly and downwardly inclined and terminated at the front in overlapped shoulder-forming regions, and fastening strips conforming in cross-section to the configuration of said panel edges and removably interposed therebetween, the rear longitudinal edges of said strips having hook-shaped tongue extensions formed for removable fastening engagement with said frame, whereby to preclude outward movement of the strips when said panels are in assembled order.

7. Means for uniting the adjoining edge portions of preformed wall panels to an associated supporting base comprising an elongated thin strip-like body, said body being shaped in cross-section to provide when horizontally disposed a flat downwardly inclined section, the forward edge of said section terminating in a downwardly extending vertical section, the lower portion of said vertical section terminating in an outwardly and angularly extending flange which terminates in a beaded edge portion, and hook-shaped fastening tongues projecting at longitudinally spaced intervals from the lower and rearward edge of the downwardly inclined section of said body.

8. A wall panel securing member comprising an elongated strip-like body having a pair of longitudinally extending sections disposed at an acute angle relative to one another, a flange provided at the free edge of one of said sections, said flange being arranged at an obtuse angle to the section to which it is connected, and hook-shaped tongues projecting from the free edge of the other section in longitudinally spaced order.

9. A wall panel securing member comprising an elongated strip-like body having a pair of longitudinally extending sections disposed at an acute angle relative to one another, a flange provided at the free edge of one of said sections, said flange being arranged at an obtuse angle to the section to which it is connected, a reversely directed bead provided at the free edge of said flange, and hook-shaped tongues projecting from the free edge of the other section in longitudinally spaced order.

10. A wall panel securing member comprising an elongated strip-like body having a pair of longitudinally extending sections disposed at an acute angle relative to one another, a flange provided at the free edge of one of said sections, said flange being arranged at an angle to the section to which it is connected, a curved bead formed on the free edge of said flange, said bead being directed away from the section to which the flange is connected, and means provided at the free edge of the other section for connecting said strip to a building wall frame.

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