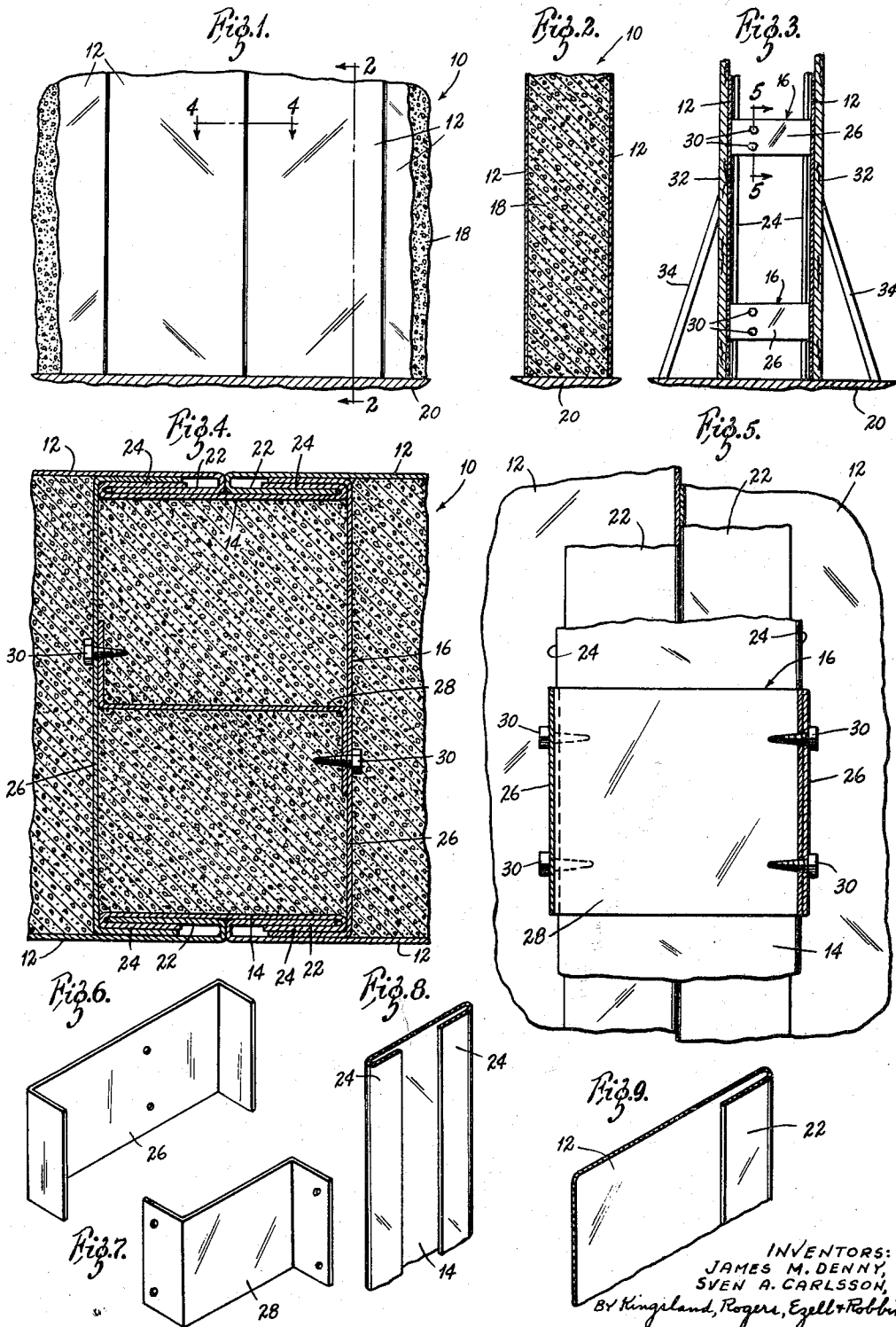


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J. M. DENNY ET AL
BUILDING CONSTRUCTION

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1

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BUILDING CONSTRUCTION

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3 Claims. (Cl. 50—360)

The present invention relates generally to building construction, and more particularly to novel wall construction and to individual interlocking features thereof.

There has long been the need for permanent inexpensive wall construction, particularly for inexpensive small homes for the average and less-than-average income family. For years, cheap flimsy houses have been constructed and sold to the low income families, which are no more than temporary shelters. Maintenance on such a structure is high and the life of the building is of short duration. Yet the public pays substantial prices for such inadequate housing.

Therefore, an object of the present invention is to provide building construction of a permanent nature, which overcomes the inadequacies pointed out in the preceding paragraph and provides permanent housing at low costs.

In brief, the present novel wall construction comprises inner and outer panels of aluminum, or the like, which are interlocked by novel bracket connectors. Between the panels and embedding the bracket connectors is a filler of continuous concrete or the like of predetermined thickness. Suitable forms of any particular construction may be braced against the inner and outer panels prior to pouring of the filler if the gauge of the panels requires support. As soon as the filler has taken an initial set, the forms (if forms are used) are removed, leaving a permanent wall requiring substantially no maintenance.

Hence, another object is to provide a novel wall construction permanent in nature, which incorporates outer and inner surfaces requiring little or no maintenance, and which resists passage of heat therethrough.

Another object is to provide a novel wall construction incorporating novel interlocking means for maintaining exterior panels normally securely in place but which permit the panels to be removed individually as required for repair or replacement.

Another object is to provide novel wall construction incorporating exterior and interior panels, which are maintained in position against removal by means invisible at the outer surfaces, thereby eliminating visible screws, nails, and the like.

Another object is to provide novel bracket units for paneled wall construction.

Another object is to provide a novel method of constructing a permanent wall construction.

Another object is to provide a novel wall construction which is permanent in nature, yet is inexpensive and is adaptable for inexpensive housing.

The foregoing and other objects and advantages are apparent from the following description taken with the accompanying drawing, in which:

FIGURE 1 is a fragmentary side elevational view, partly in vertical cross section, of a portion of wall construction incorporating the teachings of the present invention;

FIGURE 2 is a vertical, transverse, cross-sectional view taken on substantially the line 2—2 of FIGURE 1;

FIGURE 3 is a vertical, transverse cross-sectional view taken through opposed panels braced by suitable forms prior to pouring of concrete therebetween;

FIGURE 4 is an enlarged, fragmentary, horizontal cross-sectional view taken on substantially the line 4—4 of FIGURE 1;

2

FIGURE 5 is an enlarged, fragmentary cross-sectional view taken on substantially the line 5—5 of FIGURE 3;

FIGURE 6 is an isometric view of one member of the present novel bracket unit;

FIGURE 7 is an isometric view of another member of the bracket unit;

FIGURE 8 is an isometric view of a portion of a panel interengaging member; and

FIGURE 9 is an isometric view of a portion of a panel forming a part of the present novel wall structure, showing one returned portion.

Referring to the drawing more particularly by reference numerals, 10 indicates generally a wall construction built in accordance with the principles of the present invention. Broadly, the wall 10 comprises inner and outer panels 12 and panel connecting means including vertical strips in the form of channel members 14 and interconnecting brackets 16. A continuous insulating filler 18 which conveniently can be concrete is disposed between the panels 12 and embedding the brackets 16. The wall 10 may rest on a footing 20, which, if desired, may take the form of a slab for small homes not requiring a basement.

The panels 12 are of aluminum, or other suitable material, which will last for years under weathering conditions, and in the form illustrated each includes a reentrant flange portion 22 at each side. The panel connecting member 14 includes two returned portions 24, which engage the reentrant flange portions 22 of two contiguous panels 12, as is clear from FIGURE 4. The member 14 can be readily associated with the panels 12.

The bracket 16 comprising a first portion including opposed U-shaped members 26 and a second portion including a Z-shaped member 28 which connects the members 26, suitable metal screws 30 being employed. It will be observed from FIGURE 4 that the sides of the U members 26 engage between the inner surfaces of the panels 12 and the outer surfaces of the returned portions 24 of the members 14. A firm interlocking engagement of panels 12, members 14, and brackets 16 results therefrom.

For building the novel wall 10, a suitable footing 20, or slab, of concrete, or the like, is provided. Panels 12 are interlocked with members 14 and brackets 16 and disposed on the footing 20, being held in position by any desired means. The brackets 16 are spaced apart one to two feet, as required. When required, suitable forms 32 including flat faces for engaging the panels 12 are disposed against the panels 12 and maintained by braces 34, or the like, to firmly hold the panels 12 in position to receive poured concrete 18. The forms 32 are removed after the concrete 18 has acquired an initial set.

The length and width of a panel 12 will depend upon the wall 10 being constructed. The gauge of the panels 12 may vary depending upon the structure. However, it is to be borne in mind that the panels 12 are not structural members, but serve facing or covering purposes. Hence, the gauge may be relatively light commensurate with the desired quality of a long lasting surface for the wall 10. The panels 12 of aluminum, or similar material, will keep cold and hot air out of the structure of which the wall 10 is a part, and will maintain cool and warm air within the structure, thereby keeping the interior cool in the summer and warm in the winter.

The aluminum panels 12 will require substantially no maintenance. An occasional washing may be required in certain parts of the country. For color, anodized aluminum, or the like, may be employed. The wall 10 may take any desired configuration and may be disposed in any predetermined positions, as vertical, horizontal, at an angle, or the like.

It is apparent that there has been provided a novel wall which fulfills the objects and advantages sought therefor.

3

It is to be understood that the foregoing description and the accompanying drawing have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. In an insulated wall construction, spaced inner and outer walls, each wall comprising a plurality of upright metal panels and each panel having
 - reentrant vertical flanges at the inner sides thereof, the panels in each of said walls being disposed side by side in butting contiguous relation thereby forming joints between adjacent panels in said outer wall being opposite corresponding joints in said inner wall;
 - panel connecting strips at the inner sides of said walls overlaying the adjacent reentrant flanges of adjacent panels and closing the joints between said panels, said panel connecting strips extending around the edges of said reentrant flanges and having
 - returned portions disposed behind said flanges and interlocking said strips with said panels;
 - a plurality of vertically spaced brackets interposed between said walls at each said joint, each of said brackets having a first portion including
 - a pair of transverse members extending between said walls and spaced from each other longitudinally of said walls, a second portion including
 - rigid means extending between and rigidly connected with the members of each said pair,
 - inturned pairs of side flanges at opposite sides thereof also extending behind said reentrant flanges and closely received between said panels and the returned portions of said panel connecting strips, said brackets cooperating with said panel connecting strips to hold the panels in each wall contiguous with each other and butted together and also holding said walls fixedly spaced with respect to each other; and
 - a continuous rigid insulating mass filling the space between said walls, said insulating mass providing a firm backing for said wall panels and embedding said brackets but shielded and separated from said reentrant flanges and the joints between said panels by said panel connecting strips.
2. In an insulated wall construction, spaced inner and outer walls, each wall comprising a plurality of upright metal panels and each panel having
 - reentrant vertical flanges at the inner sides thereof, the panels in each of said walls being disposed side by side in butting contiguous relation thereby forming joints between adjacent panels in said outer wall being opposite corresponding joints in said inner wall;
 - panel connecting strips at the inner sides of said walls overlaying the adjacent reentrant flanges of adjacent panels and closing the joints between said panels, said panel connecting strips extending around the

4

- edges of said reentrant flanges and having returned portions disposed behind said flanges and interlocking said strips with said panels;
- brackets interposed between said walls at each said joint, each of said brackets having a first portion including vertically spaced pairs of transverse members extending between said walls, the members of each pair being spaced from each other longitudinally of said walls, a second portion including rigid means extending between and rigidly connected with the member of each said pair, each of said members of said pair having
- inturned pairs of side flanges at opposite sides thereof also extending behind said reentrant flanges and closely received between said panels and the returned portions of said panel connecting strips, said brackets cooperating with said panel connecting strips to hold the panels in each wall contiguous with each other and butted together and also holding said walls fixedly spaced with respect to each other; and
- a continuous rigid insulating mass filling the space between said walls, said insulating mass providing a firm backing for said wall panels and embedding said brackets but shielded and separated from said reentrant flanges and the joints between said panels by said panel connecting strips.
3. In an insulated wall construction, spaced inner and outer walls, each wall comprising a plurality of upright metal panels and each panel having
 - reentrant vertical flanges at the inner sides thereof, the panels in each of said walls being disposed side by side in butting contiguous relation thereby forming joints between adjacent panels in said outer wall being opposite corresponding joints in said inner wall;
 - brackets interposed between said walls at each said joint, each of said brackets having a first portion including
 - vertically spaced pairs of transverse members extending between said walls, the members of each pair being spaced from each other longitudinally of said walls, a second portion including
 - rigid means extending between and rigidly connected with the members of each said pair, each of said members of said pair having
 - inturned pairs of side flanges at opposite sides thereof also extending behind said reentrant flanges and closely received between said panels and said reentrant flanges and acting to hold the panels in each wall contiguous with each other and butted together and also holding said walls fixedly spaced with respect to each other; and
 - a continuous rigid insulating mass filling the space between said walls, said insulating mass providing a firm backing

5

for said wall panels and embedding
said brackets.

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5

10

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6

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