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[54] NAILABLE WALL CONSTRUCTION

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[58] **Field of Search** 52/586, 582, 463, 464, 479, 52/615, 617, 477, 241

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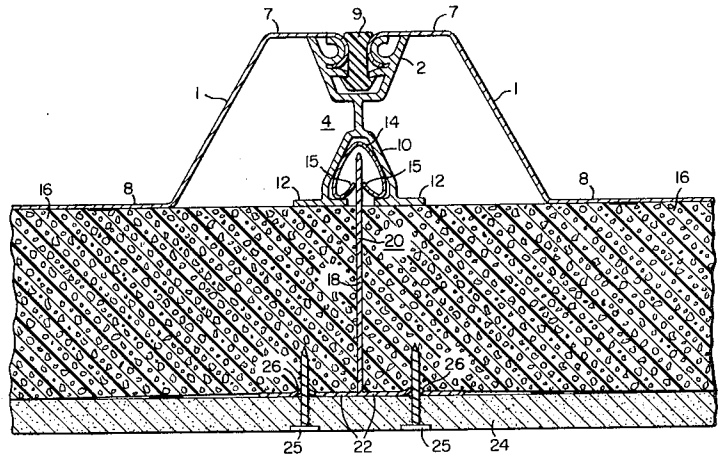
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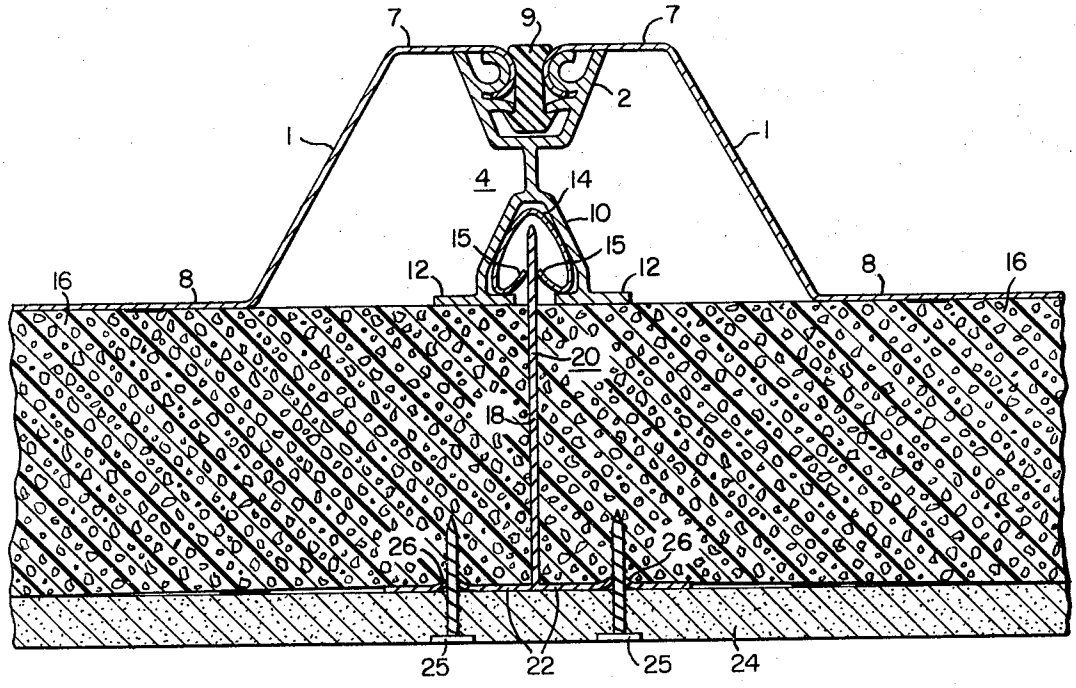
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[57] **ABSTRACT**

A wall construction including a first rigid panel engaging a first elongated spline extending lengthwise of the panel and facing to one side thereof, the spline having elongated shoulder portions for engaging a second rigid panel on one side thereof. An elongated T-shaped spline is connected to the first spline via a web portion thereof while flange portions of the T-shaped spline engage the side of the second panel opposite to and in alignment with the shoulder portions of the first spline. This combination provides a firm, rigid structure for driving a fastening means through the flange portions of the T-shaped spline for securing a third panel to the second panel via the flange portions.

4 Claims, 1 Drawing Figure





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NAILABLE WALL CONSTRUCTION

BACKGROUND OF THE INVENTION

The present invention relates generally to wall panel constructions for buildings, such as family-type dwellings though the invention is not limited thereto, and particularly to an elongated spline and spline anchoring arrangement providing, in combination with rigid panel structures, a firm surface capable of receiving driven fastening means for permanently attaching an interior panel structure to the spline. The structure of the present invention is particularly useful in securing rigid insulating panels, such as expanded polystyrene, to an exterior load-bearing wall in a convenient, rapid manner while simultaneously providing an economical means for fastening dry wall to the insulating panels.

In building constructions using 2 × 4 studding as the basic frame, the walls thereof are usually insulated by disposing and securing bats of insulation between adjacent studs. The bats are then covered by lath for holding plaster, or by dry wall board nailed to the 2 inch face of the 2 × 4 studs. The seams formed by adjoining wall boards, and nails used to fix the boards to the stud are covered over by a suitable tape and spackling compound.

Conventional framing, however, can be replaced by performed and prefinished, load-bearing panel structures, for example, as described in U.S. Pat. application Ser. No. 46,634, filed June 16, 1970 by J. D. Klingensmith and B. C. Merkin, and entitled High Strength Wall Structure with Sill and Header Members. With the use of these and similar wall structures, a rigid element must be provided to replace the studs for nailing purposes, or means other than nails must be employed to fasten the dry wall to the exterior wall.

BRIEF SUMMARY OF THE INVENTION

The present invention provides an inexpensive arrangement for conveniently fastening dry wall boards or other interior wall panels in building constructions using preformed panels as the load-bearing wall structure, and rigid insulating panels located behind the preformed panels. Briefly, the arrangement comprises a first elongated spline member attached to and extending lengthwise of the exterior panel. The member further extends inwardly of the panel and has inwardly facing shoulder or flange portions for engaging rigid insulating panels on the side thereof facing the shoulder portions. An elongated T-shaped spline is employed to hold rigid insulating panels in place against the exterior wall structure and against the shoulders of the first spline. This is accomplished by abutting facing edges of two adjacent insulating panels against a center web of the T-spline and behind flange portions of the spline, the web of the spline being anchored to the first spline. With the flange portions bearing against the rigid insulating panels, and the insulating panels disposed against the shoulder portions of the first spline (which is held against the exterior wall), a firm, rigid, structure is provided for driving fastening means, such as nails or screws through the flange portions of the T-spline. In this manner, interior wall panels can be conveniently attached to the insulating panels, via the flanges of the T-spline, while the first spline, being anchored to the exterior wall, secures the insulating panels to the exterior wall.

THE DRAWING

The invention, along with its advantages and objectives, will be best understood from consideration of the following detailed description and the accompanying drawing in which the sole FIGURE is a partial cross sectional view of a wall structure comprised of panels held together by the securing arrangement of the invention.

PREFERRED EMBODIMENT

Specifically, the figure shows in cross section, the adjacent ends of panels **1** held together by means of a U-shaped channel portion **2** of an elongated spline and splice member **4**, the ends of the panels being seated in corresponding, accommodating recesses provided in the channel portion. The panels **1** are of the type having raised and valley portions **7** and **8** extending the length of the panel, the panels being joined at the center of one raised portion thereof. The ends of the panel are held in place in the channel portion **2** by a flexible strip **9** of resilient material pressed firmly and tightly into place in the channel against the panel ends.

The spline **4** and the flexible strip **9** as well as the elongated components hereinafter described are elongated in a direction extending into the plane of the paper, and may extend the length dimension of the panels **1** though the invention is not limited thereto.

The spline **4** has a second, inwardly or rearwardly facing U-shaped channel portion **10** provided with tow integral shoulder or flange portions **12**, and an elongated spring metal clip **14** supported within the channel **10**, the clip having inwardly projecting edges **15**.

Against the valley portions **8** of the panels **1** and the shoulder portions **12** of the spline **4** are located, in end abutting relationship, two rigid insulating panels **16**. These panels may be of the "expanded" or "bead-board" type of polystyrene foam material though other types of substantially rigid insulating structures may be used. Between the abutting ends of the insulating panels is the web **18** of a second, elongated T-shaped spline **20**, the web **18** having an end portion extending into and secured in the channel **10** of the spline **4**. The T-spline **20** is secured in the channel **10** by the inwardly projecting edges **15** of the spring clip **14**, the walls of the channel and the forced against spreading apart to receive the web when it is forced against the spring, and then closing thereon to secure the same in the channel between the edges **15** of the clip.

The other end of the T-spline **20** has laterally extending flange portions **22** which engage the panels **16** on the side thereof opposite to the side bearing against the shoulders **12** of the spline **4**. In this manner, the flanges are located opposite the shoulders of the spline **4**, and when the T-spline is pushed into the spring clip **14** to the extent allowable by the thickness dimension of the panels **16**, the panels are secured in place against the exterior panels **1**, and a firm, rigid structure is provided by the combination of the flange portions **22**, the rigid insulating panels **16** and the shoulder portions **12** of the spline **4** engaging the insulating panels.

With such a structure, a third, interior panel **24**, such as a dry wall panel, can be easily nailed (or otherwise fastened) to the second panel **16** by driving nails **25** (or other suitable fastening means) through the panel **24** and into the flange portions **22** of the spline **20**. When fastening means are driven through flanges, burrs **26** are formed on the surface of the flanges engaging the panels **16** and around the shank of each nail as shown in the drawing.

A further advantage of the invention is the infinite adjustment of the T-spline **20** provided by the spring clip **14** which can bite into the otherwise smooth sides of the web **18** of the spline to secure the same. Insulating panels **16** of various thicknesses can thus be firmly secured to the exterior wall **1** by simply pushing the spline into the clip until the flanges **22** press against the insulating panels, the only limitations on the infinite adjustment being the depth of the clip and channel **10** and the length of the web portion extending therein. The web can be provided with notches or projections to further enhance the holding function of the clip and channel.

Yet another advantage of the invention is that the holding power of the fastening means **25** is directed solely to securing the dry wall **24** since the insulating panels **16** are anchored to the exterior wall **1** by the splines **4** and **20**. The holding force of the fastening means can further be increased by using nails provided with screw threads on the shank portions thereof which engage the burrs **26** provided in flanges **22** when the nails are driven therethrough. Fastening means other than nails can, of course, be driven through the flanges **22** of the T-spline to fasten the panel **24** to the panels **16**.

A further advantage of the invention lies in the fact that the insulating panels **16** can be butted against the T-spline **20** so that for all practical purposes a continuous insulating barrier is provided.

The splines **4** and **20** are preferably extruded members and they can be either metal or a suitable insulating plastic material, for example, a vinyl plastic. If either or both of the T and exterior panel splines are made of insulating plastics, a thermal barrier is provided between the exterior and interior wall panels.

From the foregoing description it should now be apparent that a new and useful nailable spline arrangement has been disclosed, the arrangement being particularly useful in building constructions that do not have conventional wall studding. The arrangement comprises a first spline engaging the inside surface of an exterior wall, and a second, T-shaped spline having its web portion secured to the first spline, and flange portions holding a rigid panel against oppositely located shoulder or flange portions of the first spline. The flange portions of the T-spline, disposed against the rigid panel, which in turn engages the shoulder portions of the first spline, provides a nailable structure through which nails or other suitable fastening means can be driven to secure a third panel to the rigid panel.

While the invention has been described in terms of preferred embodiments, the claims appended hereto are intended to encompass all embodiments which fall within the spirit of the invention.

Having thus described my invention and certain embodiments thereof, I claim:

1. In a wall construction

a first panel structure including two rigid panels having adjacently disposed, elongated end portions,

a second panel structure disposed on one side of and substantially parallel to said first panel structure, said second panel structure including two rigid panels having adjacently disposed end portions in substantial alignment with those of said first panel structure,

an elongated splice member having a channel portion joining together the end portions of said first panels, and elongated flange portions engaging said second panels on one side thereof,

an elongated and substantially continuous T-spline having a web portion located between the end portions of said second panels, and connected to said splice member, said T-spline further having elongated and substantially continuous flange portions engaging said second panels on the side thereof opposite to the side engaging the flange portions of said splice member,

the flange portions of said splice member and T-spline together with said second panels providing a firm combination for driving a fastening means through the flange portions of said T-spline.

2. The structure of claim **1** including a third panel located on the side of the second panel structure remote from the first panel structure, and fastening means extending through said third panel and into the flange portions of the T-spline for securing said third panel to the T-spline.

3. The structure of claim **1** including a third panel located on the side of the second panel structure remote from the first panel structure, and nails extending through said third panel and into the flange portions of the T-spline, said nails having threaded shank portions, and the flange portions of said T-spline having a burr surrounding the threaded shank portions of each nail to secure the same in the flange portions.

4. The structure of claim **1** in which the splice member has an elongated U-shaped portion facing in the direction of the T-spline, the web of the T-spline having an end portion extending into said U-shaped portion, and means within said U-shaped portion gripping the end portion of said web.

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