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BOARD SECURING MEANS

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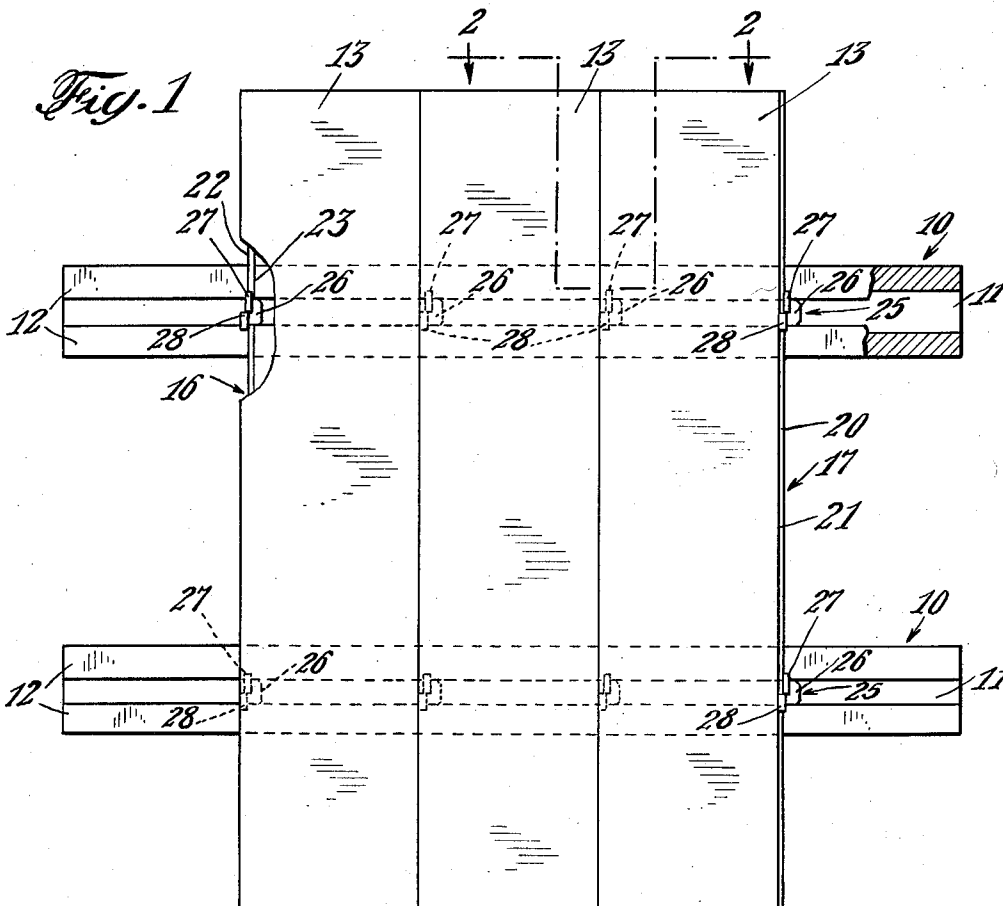


Fig. 2

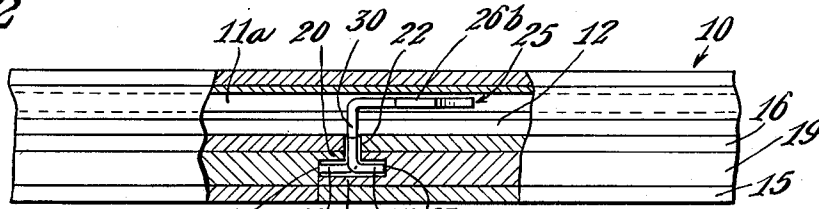


Fig. 3

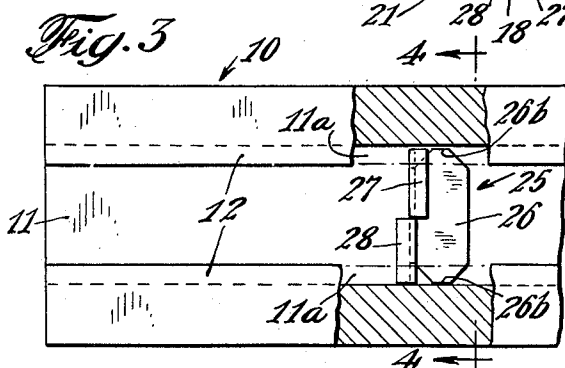


Fig. 4

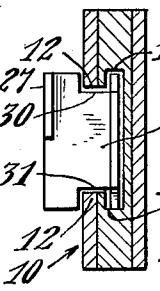
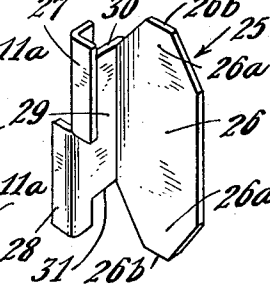


Fig. 5



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BOARD SECURING MEANS

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3 Claims. (Cl. 20—8)

This invention relates to board securing means and more particularly to securing means especially well suited for use with relatively thin multi-layer boards such as plywood or the like.

Attempts have been heretofore made to provide a fastening means for boards which may form the surface of the wall or ceiling of an enclosure and which eliminates the use of nails, screws or other members driven into or forcefully engaging the boards. While the cost of erecting such structures with nails, screws or the like is one important consideration, another is that such fastening means as nails or screws are in practice unsuitable for use with relatively thin multi-layer boards. This is especially true where it is necessary or desirable that the joint and fasteners between adjacent boards be concealed. It is difficult to form the usual type of tongue and groove in the side edges of plywood or other composition boards to be butted so that nails, screws or other such fasteners may be driven into the same without causing splitting or splintering of the joint.

Because of the exceedingly thin surface layers utilized in such composite boards, it is especially important that they be kept free of strains and stresses when installed. Furthermore, after installation the boards to be satisfactory and preserve the desired finish and appearance must be free to expand and/or contract. While certain expedients have been heretofore proposed which have eliminated the use of nails or screws as such, securing members were substituted which were wedged in place in one way or another and so engaged the boards that even if the initial installation were free of undesired forces, movement of the boards due, for example, to swelling was prevented. As a consequence, fairly rapid deterioration and even failure of the installation resulted.

It is therefore a principal object of this invention to provide board securing means especially well suited for the erection of wall or ceiling surfacing which, while positively securing the boards to suitable support members, leaves the same free to expand and contract.

A more specific object is to provide a clip member as part of such securing means which may be readily manually inserted in its operative position.

In carrying out one preferred embodiment of this invention there is provided in one elongated side surface a projecting front tongue by milling away the back surface of the board with the tongue forming a part of the front surface of the board which projects laterally beyond the back surface. Into the back wall of the rabbet thus formed and parallel to the front surface of the board a kerf is formed so as to provide a slot substantially midway between the front and back surfaces of the board and extending longitudinally along the rabbeted edge thereof. The other longitudinal side surface of the board is also rabbeted to form a second or back tongue which is substantially complementary to the front tongue and as an extension of the back surface of the

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board. When two such boards are placed in side by side abutting relation, the rabbets form a substantially T-shaped slot, one arm of the T being formed by the aforementioned kerf, the other arm of the T being formed between the opposed but spaced tongues and the leg of the T being formed between the back tongue and the recessed portion of the first board which underlies the front tongue.

Thus, while the boards may be installed with the side edges of their outer or front surfaces in abutting relation, the leg of the T-shaped slot opens to the rear. The boards thus formed are secured to suitably supported channeled members the side walls of which forming the channels thereof are undercut to form a partially recessed slideway in which clip members may be inserted. Each clip member has a web portion which interconnects a base wing with a pair of securing wings which extend in opposite directions from the web. The base wing of the metal clip is sufficiently wide so as to extend under the flanges and into the recesses of the channeled members, but is so proportioned and shaped relative to the recessed channel that it may be readily inserted and rotated in either direction until it extends substantially normal to the channel and may readily be removed by rotating same. The web portion of the clip member is recessed at each end so that a portion of each securing wing extends over one of the flanges formed in the channel member while the corresponding end portion of the base wing extends under the respective flanges. The base wing is tapered at each end so as to permit mounting of the clip in its channel in a quick connect-disconnect fashion. The length of the base wing is somewhat less than the width of the recessed channel thereby permitting the metal member to readily slide therealong.

Further objects as well as advantages of this invention will be apparent from the following description thereof when read in conjunction with the accompanying drawing wherein

Figure 1 is a front elevational view on a reduced scale of an installation in accordance with the present invention especially suited for mounting interior wall paneling in a structure;

Figure 2 is a sectional view through the line 2—2 of Figure 1 on an enlarged scale and showing the parts as they would be viewed by one positioned in front of the wall and looking down at the upper end thereof;

Figure 3 is a plan view of one clip member mounted in its channel member with the channel member partially broken away for convenience;

Figure 4 is a sectional view through the line 4—4 of Figure 3; and

Figure 5 is a perspective view of one of the clip members.

Referring now to the drawing in detail, channel members 10 are preferably formed from the usual quarter-inch plywood stock and each has an elongated partially recessed channel 11 formed in the intermediate layer thereof with recessed portions 11a forming flanges 12 one along either side of channel 11. For the purpose of installing vertical wall boards in connection with which the present invention is now being described, two or more channel members 11 are secured in any suitable manner on the usual studs or other suitable supports (not shown) in horizontal spaced relation.

Elongated boards 13, portions of three such boards being shown in Figure 1, are secured to channel members 10 by means to be described in detail, so as to extend vertically and transversely relative to channel members 10. Preferably, boards 13 are also formed of quarter-inch plywood stock and have a rear surface layer 14 and a front surface layer 15. Each board 13 is milled

along its longitudinal sides to form substantially complementary rabbets 16, 17. Rabbet 16 is formed so as to provide a front tongue 18 extending longitudinally along one side of each board 13 and as an extension of front surface layer 15 and a portion of intermediate layer 19. Rabbet 17 is formed along the other side of each board so as to provide a back tongue 20 which is shorter than tongue 18. Tongues 18 and 20 are of such thickness relative to the thickness of the boards 13 that when two such boards are placed in side by side parallel butting relation, tongues 18 and 20 come into opposed spaced relation and form an elongated slot 21 therebetween. Since tongues 18 and 20 are not of equal length, tongue 20 of one board does not come into butting relation with the end wall of layers 16 and 19 of the adjacent board but forms therewith an elongated slot 22 which is disposed at right angles to slot 21.

An elongated slot 23 is formed in the side wall of layer 19 of each of the boards 13 underlying the tongue 18. Thus when two such boards are assembled with the rabbets 16 and 17 thereof in complementary relation, the slots 21, 22 and 23 combine to form an elongated T-shaped slot which extends transversely of channel members 10.

Clip member 25 is preferably formed of sheet metal and comprises a base wing 26, oppositely disposed securing wings 27, 28 and an interconnecting web portion 29. Recesses 11a formed in channel members 10 and slots 21-23 formed by boards 13 are of such width as to readily accommodate the thickness of the respective portions of clip member 25 which are inserted therein. Securing wings 27, 28 are formed by slitting the median portion of web 29 remote from base wing 26 and then bending the portions thereof which form securing wings 27, 28, respectively, in opposite directions. Web portion 29 is also notched as at 30 and 31, as most clearly shown in Figure 4, to receive flanges 12 of channel member 10. Base wing 26 is generally octagonal in outline and is of such length with respect to the width of channel 11 and its recessed portions 11a that when the base wing extends normally thereof, it is freely slidable therealong. End portions of base wing 26 are tapered as shown to form end portions 26a thereof which are tapered or generally trapezoidal in shape and having relatively short bases 26b. Thus when clip member 25 is in its mounted position in channel 11 of one of the channel members 10, as shown in Figure 3, it can be rotated clockwise or counterclockwise to be removed. Furthermore, when in position, as shown in Figure 3, clip member 25 may readily be slid along channel 11 to the right or left. To insert the clip member it is initially positioned obliquely of the channel and then rotated in either direction to the position shown, only a light finger tip pressure being required to properly position the clip member.

In practice, wall boards 13 are simply and expeditiously erected either vertically or horizontally. In the case of a vertical installation as shown in the drawing, channel members 10 are secured to the usual vertical studs or an old wall surface in spaced horizontal relation. The first or end board 13 is secured in place in any suitable manner but preferably by means of clips or other suitable devices which freely permit expansion and contraction thereof. Only the outer longitudinal edge of the first board need be secured in this way. Assuming that the free edge of the first board has one of the rabbets 16 formed therealong, a clip member 25 is inserted into each of the channel members 10 across which the board extends and is seated with its securing wing 27 extending in slot 23. With the clip members in place, the second board 13 is brought into side by side butting relation with the first board and with its tongue 20 extending under both securing wing 28 and tongue 18 of the first board. The operation is continued until the entire area to be covered has been surfaced, the outer edge of the last board being secured as was described in connection with that of the

first board. Again a fastening which permits some degree of movement of the last board may be preferred.

It is apparent from the foregoing that there is provided a simple securing means whereby thin plywood boards may be easily and quickly installed. Furthermore, the installation is such that the possibility of warping and buckling of the boards as well as splitting or peeling of the ornamental surface layer thereof is substantially eliminated. While the present invention has been described in detail in connection with the use of thin plywood materials, it is also well suited for use with other relatively thin surfacing materials. The invention is especially adapted for use with such materials which have heretofore proven especially short-lived and generally unsatisfactory when the fastening means used in conjunction therewith has prevented free expansion and contraction.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. Board securing means, comprising in combination an elongated channeled member having oppositely disposed elongated recesses formed therein opening toward each other and forming elongated flanges each overlying a side portion of said channel, elongated boards having a front and back surface and extending in side by side relation across said channeled member, said boards each having grooves formed along the sides thereof forming substantially complementary laterally projecting front and back tongues with the front tongue along one side of a board forming an extension of the front surface thereof, the back tongue on the other side of the board forming an extension of the back surface thereof, said front tongue being longer than said back tongue so that a first slot is formed between the back tongue of one board and the adjacent side wall portion of another board with said front tongue engaging the corresponding side wall portion of said another board, the thickness of said tongues being less than the thickness of any one of said boards so that a second slot is formed between the opposed faces of said tongues, said boards each having a third slot formed therein extending into the side wall thereof behind said front tongue, said slots combining to form an elongated T-shaped slot with said first slot forming the leg thereof and opening toward said channeled member and said second and third slots forming the arms thereof, and a clip member securing the boards to said channeled member having a base wing having tapered opposite end portions extending under said flanges and freely slidable in said channel, a web portion extending transversely of and out of said channel and having notches formed in either side through which said flanges extend, said web having a width less than the width of the channel, a pair of securing wings extending in opposite directions from said web portion and in said second and third slots, and said web portion extending in said first slot.

2. Board securing means for thin multi-layer boards, comprising in combination an elongated channeled member having an elongated channel formed along one face thereof with oppositely disposed elongated recesses formed in the side walls of said channel and providing elongated flanges, elongated multi-layer boards each having an intermediate layer and relatively thin front and back surface layers, said boards extending in side by side relation across said channeled member, said boards each having grooves formed along the opposite sides thereof forming substantially complementary laterally projecting front and back tongues with the front tongue along one side of a board forming an extension of the front layer and one portion of the intermediate layer thereof, the back tongue on the other side of the board forming an extension of the back

layer and another portion of the intermediate layer thereof, said front tongue being longer than said back tongue so that a first slot is formed between the back tongue of one board and the adjacent side wall portion of another board with the front surface layers in edgewise butting relation, the thickness of said tongues being less than the thickness of any one of said boards so that a second slot is formed between the opposed faces of said tongues, said boards each having a third slot formed therein extending into the side wall and intermediate layer thereof behind said front tongue, said slots combining to form an elongated T-shaped slot with said first slot forming the leg thereof and opening toward said channeled member and said second and third slots forming the arms thereof, and a clip member securing the boards to said channeled member having a substantially octagonal base wing having tapered opposite end portions extending under said flanges and freely slidable in said channel, a web portion extending transversely of and out of said channel and having notches formed in either side through which said flanges extend, said web having a width less than the width of the channel, a pair of securing wings extending in opposite directions from said web portion and in said second and third slots, and said web portion extending in said first slot.

3. A sheet metal board clip for use with thin multi-layer boards, comprising a base wing, web portion and two securing wings, said base wing being substantially octagonal with opposite end portions thereof tapered and

substantially reduced in width and having a rectangular median portion, said web portion extending along one of the longer sides of the rectangular median portion of said base wing and substantially normal thereto, said web portion having a notch in either side thereof formed at its juncture with said base wing so that the portion of the web contiguous with the base wing has a width substantially less than the length of the base wing, and said securing wings extending in opposite directions from said web portion and spaced thereby from said base wing, whereby said clip is freely movable along a channeled member having a pair of inwardly directed flanges on opposite sides of a channel with said base wing seated in said channel extending behind said flanges and said notches receive said flanges.

References Cited in the file of this patent

UNITED STATES PATENTS

20	582,645	Heaton	May 18, 1897
	1,714,738	Smith	May 28, 1929
	1,888,611	Wolfson	Nov. 22, 1932
	2,004,193	Cherry	June 11, 1935
	2,004,917	Johnson	June 11, 1935
25	2,046,593	Urbain	July 7, 1936
	2,129,976	Urbain et al.	Sept. 13, 1938
	2,316,671	Crooks	Apr. 13, 1943
	2,578,085	Perkins	Dec. 11, 1951