July 16, 1940. D. D. CRANDELL 2,208,094

BUILDING CONSTRUCTION

Filed Jan. 28, 1939

Fig. 1.

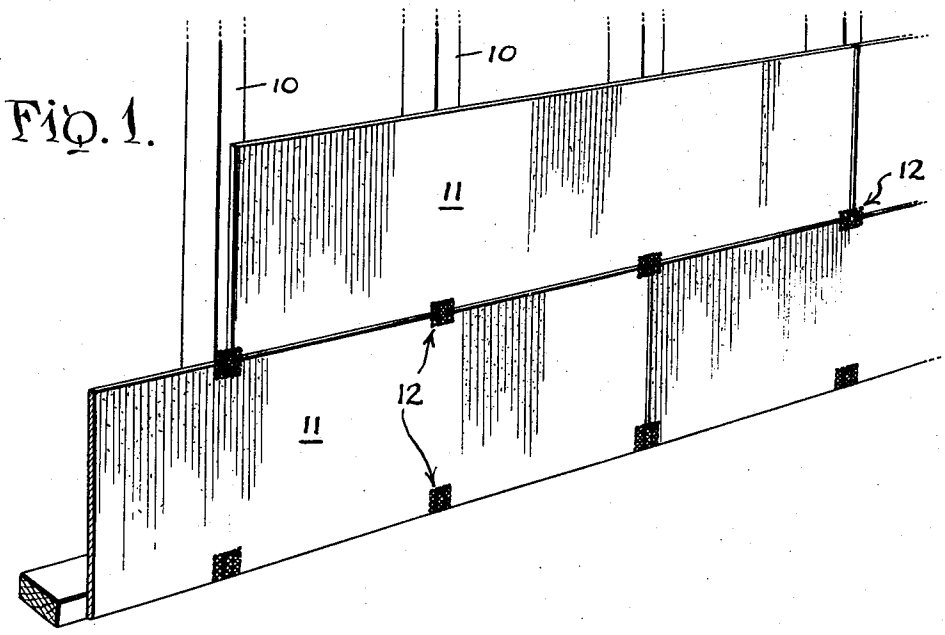


Fig. 3.

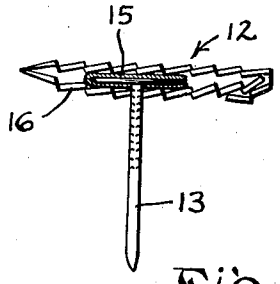


Fig. 2.

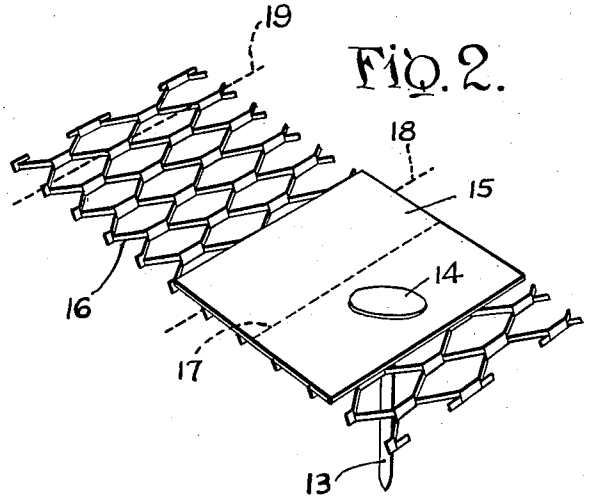
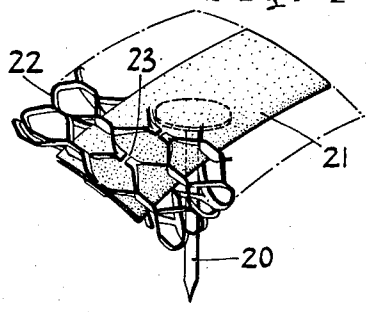


Fig. 4



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BUILDING CONSTRUCTION

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Application January 28, 1939, Serial No. 253,388

8 Claims. (Cl. 72—118)

This invention relates to building constructions and more particularly to constructions wherein a plurality of preformed building units are secured to the building frame work to produce walls.

In constructing walls of preformed slabs considerable difficulty is encountered in adequately securing the slabs to the framework or studding of the building. It is desirable to secure such slabs by inserting fastening means between adjacent slabs rather than through the several slabs since by the former means adequate provision for expansion and contraction due to thermal and climatic conditions is automatically afforded, providing the securing means itself is such as to permit the movement in the plane of the wall which is incident to such expansion and contraction.

An object of the present invention is to provide a wall construction which will inherently possess the desired possibilities and capabilities delineated above and which will also lend itself to facile installation.

Another object is to provide a wall construction wherein a plurality of unitary wall members may be fastened to conventional studding securely and yet in such manner as to afford the desired tolerance for relative expansion and contraction of the wall members.

To accomplish the above objects I have devised a new fastening means comprising a nail-like element having a composite head designed to serve the dual function of holding the wall boards against studding or other building frame work in the manner outlined above and to furnish a plastering ground whereby plaster applied over the wall boards and the fastening means will be provided with adequate anchorage. The fastening means of my invention is so constructed and cooperates in the finished wall construction in such a way that its working loose from the frame work or pushing out from the wall is adequately prevented.

An illustrative embodiment of my invention is shown in the accompanying drawing wherein:

Fig. 1 is a perspective view of a wall construction in a partial state of completion;

Fig. 2 is a perspective view of my new fastening means with all of its elements present but not completely assembled;

Fig. 3 is an elevational view of the assembled fastening means; and

Fig. 4 is a perspective view of a modified form of the fastening means of the present invention.

In the drawing the numeral 10 refers to studding or other building frame work and the elements 11 may be wall boards positioned against the studding and held in place by fastening elements designated generally at 12. It is to be noted that the fastening elements 12 are, insofar as is convenient, disposed between adjacent wall boards rather than through individual boards.

The wall construction shown in Fig. 1 is usually completed by the application of an all-over coating of plaster and it is in such completion that the fastening elements 12 perform their functions of anchoring the plaster coating to the underneath wall construction composed of the wall boards 11.

Referring to Fig. 2, the fastening element 12 is made up of a nail-like member 13 having a head 14, a sheet or plate-like element 15 which may be of cardboard or other suitable material, and a reticulated element 16 which in the illustrated embodiment assumes the form of a piece of expanded metal lath.

The element 15 is divided approximately down the middle as at 17, either by scoring or merely imaginarily, and the nail-like member 13 is forced through the approximate center of one of the halves so formed. The other half of the element 15 is then folded over the top of the head 14 of the member 13 as illustrated in Fig. 3.

The reticulated element 16 is also divided, either by scoring or imaginarily, into three areas defined by the dotted lines 18 and 19, and the member 13 is then inserted through one of the openings in the element 16, as illustrated in Fig. 2, approximately centrally of one of the end areas. The next adjacent area, preferably of approximately the same size, is then folded over the top of the head 14 with its associated sheet-like element 15 and the remaining area, constituting a retaining flap, is then folded beneath the lower or first mentioned area, as illustrated in Fig. 3 to retain the entire device in securely assembled relation.

An important feature of the invention is the fact that by the mode of assembly herein described the relationship of the parts is such that the nail cannot back out, that is to say that no movement of the nail, along its axis in either direction, is possible with respect to the sheet element 15 or the reticulated element 16.

In Fig. 4 a modified form of the fastening means is shown in perspective. For clearness of illustration only a portion of the mesh of the reticulated element is shown in detail, the remainder being indicated by dot and dash lines.

The elements 20 and 21 of the modified form, the nail and the sheet-like elements respectively, are substantially the same as the elements 13 and 15 respectively of the modification illustrated in Figs. 2 and 3. The reticulated element 22, however, in the embodiment of Fig. 4, comprises a single rectangular sheet of metal lath or analogous material which extends across the under side of the elements 20 and 21 and has its opposed marginal portions folded over the top of the assembled fastening means and the opposed edges of such marginal portions substantially meet at the center as shown at 23. In other words, the assembled nail 20 and sheet-like element 21 of Fig. 4 are placed upon the rectangular sheet 22 with the shank of the nail 20 projecting through the center of the sheet 22. Opposed marginal portions of the rectangular sheet are then folded over the top of the assembled nail and sheet-like element 21 in such manner that the edges of such marginal portions are substantially in juxtaposition.

As illustrated in Fig. 4, the reticulated element 22 which forms the head of the fastening element may be formed to present a convex top surface and a concave under surface. This crowning or doming of the head of the fastening element is for the purpose of affording a more resilient gripping of the wall units by the heads of the fastening elements when the latter are brought into properly assembled relation with respect to the wall units.

In this connection it will be noted that as a fastening element is driven into the building framework or studding the four corners of the arched or domed head of the fastening device will come into contact with a wall unit or wall units in advance of the remaining portions of the head. It is intended that after such initial contact is to be driven in just enough more to partly flatten the dome or crown of the head to set up a resilient tension in the head and thereby resiliently grip the associated wall units. While the fastening unit may be driven entirely home, thereby setting up the maximum tension in the reticulated element, I preferably drive the fastening element in only so far that the wall units are resiliently gripped but so that a space remains under the head portion of the fastening element at the center thereof.

It is contemplated that the form of reticulated element shown in Figs. 2 and 3, with the fold securing flange portion, may be curved to provide an upwardly arched surface in the manner described in connection with the modification of Fig. 4; likewise, the reticulated element may be folded as described in connection with the modification of Fig. 4 and the top of the fastening element left flat as in Fig. 3.

As has been previously indicated the fastening devices are preferably disposed, in assembling a wall, between adjacent wall boards 11, for two reasons, first because such disposition permits relative shifting of the elements of construction in response to thermal changes and second because the relatively large head portion formed by the elements 15 and 16 provide adequate holding or clinching surfaces against the marginal portion of two, three, or even four boards, and the number of fastening elements required in a complete assembly is consequently greatly reduced.

While specific details of construction and arrangement have been described and illustrated it is to be understood that my invention is to be limited only as defined in the appended claims.

I claim:

1. In a wall construction including building frame work and a plurality of wall board elements disposed thereagainst, securing devices for maintaining said wall board elements against said frame work comprising a nail-like element adapted to have its shank driven between adjacent wall boards and into said frame work, a sheet-like member impaled upon said shank and having a portion thereof folded over the head of said nail-like element, a reticulated member folded about said sheet-like member to completely enclose the same, and a plaster coating applied over said wall board in the openings and anchored thereto by lodgement in said reticulated member.

2. In a wall construction including building frame work and a plurality of wall board elements disposed thereagainst flatwise, securing devices for maintaining said wall board elements against said frame work comprising a nail-like element adapted to have its shank driven into said frame work with its head portion disposed adjacent the outer surface of said wall board elements, a sheet-like member folded upon itself and having one of its folded portions disposed beneath the head of said nail-like element and its other folded portion disposed over the top of said head and a reticulated element folded upon itself and having a portion disposed beneath the head of said nail-like element and a portion disposed across the top of said head, both portions being disposed outside said folded member.

3. In a wall construction including building frame work and a plurality of wall board elements disposed thereagainst flatwise, securing devices for maintaining said wall board elements against said frame work comprising a nail-like element adapted to have its shank driven into said frame work with its head portion disposed adjacent the outer surface of said wall board elements, a flat plate portion impaled upon said shank and disposed beneath the head of said nail-like element and another flat plate portion disposed across the top of said head, and a reticulated member folded upon itself and having one folded portion thereof disposed against the outside of each of said plate portions and means for maintaining said reticulated member in folded relation.

4. In a wall construction including building frame work and a plurality of wall board elements disposed thereagainst, securing devices for maintaining said wall board elements against said frame work comprising a nail-like element adapted to have its shank driven between adjacent wall boards and into said frame work, a sheet-like member impaled upon said shank and having a portion thereof folded over the head of said nail-like element, and a reticulated member folded about said sheet-like member to substantially completely enclose the same and form a composite head portion, said composite head portion being initially formed to be upwardly convex whereby initial engagement thereof with said wall board elements occurs at the corners and edges of the composite head portion.

5. In a wall construction including building frame work and a plurality of wall board elements disposed thereagainst, securing devices for maintaining said wall board elements against said frame work comprising a nail-like element

adapted to have its shank driven between adjacent wall boards and into said frame work, a sheet-like member impaled upon said shank and having a portion thereof folded over the head of said nail-like member, and a reticulated member extending against and below said sheet-like member with the shank of said nail-like member extending therethrough and having opposite marginal edges folded across the top of said sheet-like member to substantially surround the same.

6. In a wall construction including building frame work and a plurality of wall elements disposed thereagainst flatwise, securing devices for maintaining said wall elements against said frame work each comprising a nail-like element adapted to have its shank driven into said frame work with its head portion disposed adjacent the outer surface of said wall elements, a flat plate portion impaled upon said shank and disposed beneath the head of said nail-like element and another flat plate portion disposed across the top of said head, a reticulated member folded upon itself and having one folded portion thereof disposed against the outside of each of said plate portions for maintaining them in assembled relation, and a coating of plaster over said wall elements for substantially completing said wall construction.

7. In a wall construction including building frame work and a plurality of wall elements disposed thereagainst flatwise, securing devices for maintaining said wall elements against said frame work each comprising a nail-like element adapted to have its shank driven into said frame work with its head portion disposed adjacent the outer surface of said wall elements, and a reticulated member extending against and below the head portion of said nail-like element with the shank of said nail-like member extending therethrough, said reticulated member having a portion thereof folded upon itself and across and over the top of the head portion of said nail-like element to substantially surround the same.

8. In a wall construction including building frame work and a plurality of wall elements disposed thereagainst flatwise, securing devices for maintaining said wall elements against said frame work each comprising a nail-like element adapted to have its shank driven into said frame work with its head portion disposed adjacent the outer surface of said wall elements, and a reticulated member disposed flatwise against the head portion of said nail-like element and rigidly secured thereto, whereby to form an enlarged reticulated head for said nail-like element and prevent relative axial movement of said nail-like element with respect to said reticulated member.

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