

April 23, 1935.

G. H. ELLIS

1,998,610

WALL CONSTRUCTION

Filed May 21, 1934

Fig-1

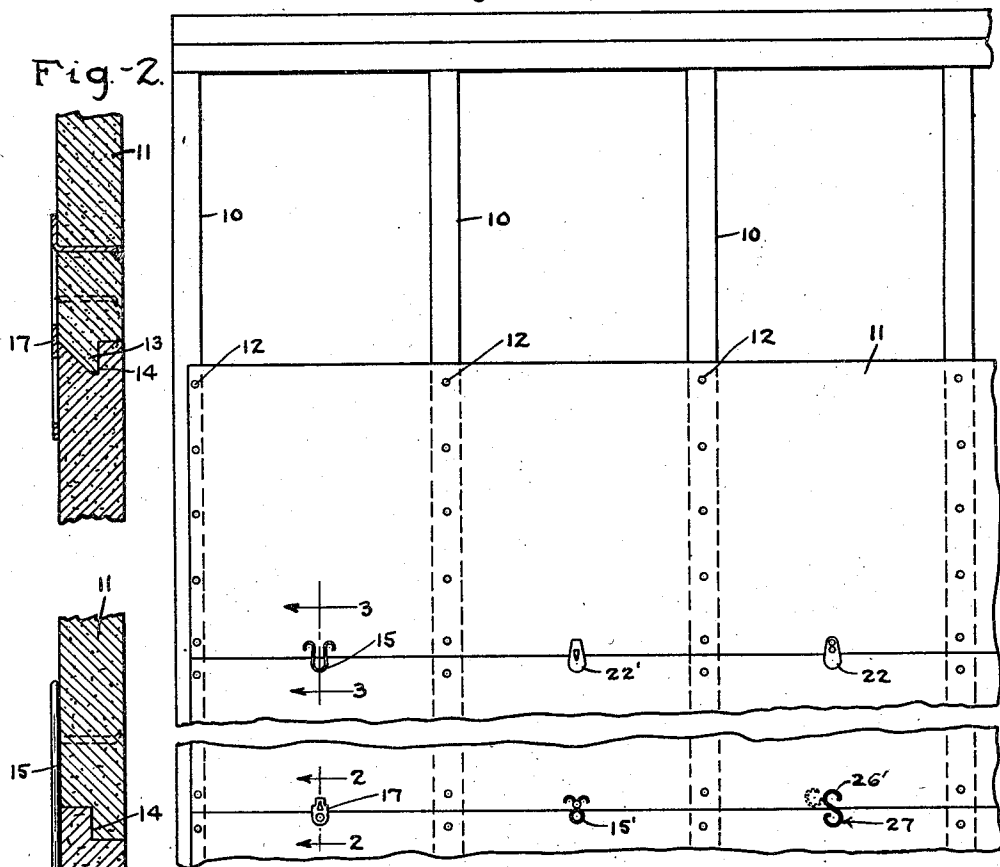


Fig-2

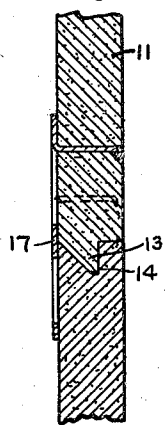
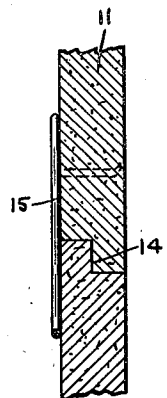


Fig-3

Fig-4

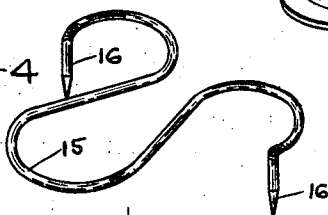


Fig-9



Fig-8

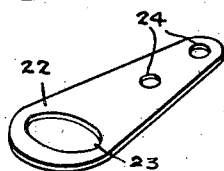


Fig-5

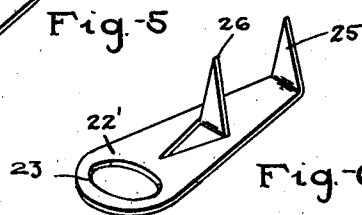


Fig-6

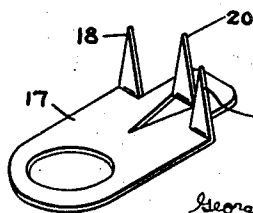


Fig-7

Inventor:

George H. Ellis

J. F. Woodward
Atty

UNITED STATES PATENT OFFICE

1,998,610

WALL CONSTRUCTION

George H. Ellis, St. Paul, Minn., assignor to The Insulite Company, Minneapolis, Minn., a corporation of Minnesota

Application May 21, 1934, Serial No. 726,654

15 Claims. (Cl. 72-32)

This invention relates to improvement in building construction, particularly to the method of applying facing elements or board in the construction of walls of buildings. The method may be applied in relation to studdings or to the flooring stringers and the facings are ordinarily covered with plaster, cement or stucco. The invention also includes means for decreasing the heat losses at the joints and means for reinforcing the joints and assisting in bonding the plaster.

This application is an improvement in part on my co-pending application Serial #623,335, filed July 19, 1932.

Features of the invention include: the use of fibrous elements in forming wall structures; the wall structure itself; the reinforcing devices themselves and their methods and means of attachment and generally to all details of construction of the reinforcing elements and means for connecting them.

Other and additional objects of the invention will be set forth in the description and the drawing which form a part of this application. In the drawing:

Fig. 1 is a view showing one embodiment of my invention as applied in the formation of a wall.

Fig. 2 is an enlarged section showing a reinforcing means and an interlocked joint.

Fig. 3 is a sectional view showing another form of reinforcing means.

Fig. 4 is a perspective view of a looped reinforcing means.

Fig. 5 is a view of a flat reinforcing means showing the form as stamped from a sheet of material.

Figures 6, 7 and 8 are modified forms of the reinforcing means.

Figure 9 is a view of the prongs which are adapted to be driven into the material.

Heretofore it has been customary to reinforce the joint and assist in bonding the plaster by providing or cutting away a portion of the tongue member so as to provide a groove that increases the depth of the plaster in the region of the joint.

This means of reinforcing and assistance in bonding the plaster decreases the insulation value at the joints and is not altogether successful in providing proper bonding of the plaster.

According to my invention the insulation value at the joint is greatly increased and practically the same as that of any other portion of the wall and in addition to this the joint is reinforced and the reinforcing means acting as a plaster ground and assists in bonding the plaster.

In the drawing the numeral 10 indicates stud-

dings against which are laid slabs of fibrous material 11, suitable as a plaster base. This material is secured to the studding by means of suitable fastening devices 12. The slabs may be of any desired length and width but generally the length of slabs used for this purpose is about 48" and the width about 18". The long dimension of the board is generally laid so as to be transversed to the studding and the abutting ends of the contiguous boards of the horizontal rows takes place on the studdings and these vertical joints need not be over-lapped, but if desired they can be so constructed.

The slabs are formed and laid to provide a ship-lapped horizontal longitudinal joint, generally indicated at 13, see Figure 2 and for this purpose the opposite end of each slab 11 is cut out respectively as at 14 to provide a recess or notch at opposite longitudinal edges. Although in this instance each element 11 is notched there is no intention to limit the shape of the longitudinal elements, just so they are formed to provide an over-lapped, and/or inter-locked joint which will not decrease the insulation value at such joints.

It is an important object of this invention as before stated to increase the insulation value at the joints and to reinforce such joints and assist in bonding the plaster securely to such plaster receiving base.

When walls are constructed in accordance with this invention there is no unevenness in such walls and the plaster will be uniform in thickness as the reinforcing means requires a plaster to be sufficiently thick to cover them and thus makes it impossible to "skin the plaster".

A joint that does not have a tendency to open due to pressure while applying the plaster is shown in Figures 2 and 3 but it is to be understood that the invention is not limited to this type of joint but includes any joint that prevents the insulating value from being decreased.

One form of the reinforcing means has the form of a looped structure formed by bending a single piece of wire upon itself to provide arms 15 which converge at the open ends outwardly and the terminal portions are bent in a direction substantially parallel with each other or the terminal portions are bent toward the closed end of the loop. The tip of each terminal portion is bent in a direction substantially perpendicular to the plane of the arms and these tips are tapered to provide prongs 16, adapted to be driven into the material to which the device is secured. The prongs 16 are driven into the sheet at a point between the open end and the edge of the sheet

to which it is attached. The prongs thus arranged prevents the arms from swinging to and fro and they pass entirely through the sheet or only a part of the way through. The loop is secured to a sheet in such a manner that one end thereof extends outwardly beyond the edge of the sheet and over the edge of a like sheet which cooperates with the first mentioned sheet in forming an air-tight joint.

Figure 7 discloses another form of reenforcing means which is stamped or cut from a suitable sheet of material. The body 17 of the reenforcing means may be of any desired shape but preferably that shown in Figure 7. When the reenforcing means it stamped out portions are removed and the body is split along the edges at one end. The prong like members 18 and 19 are bent in a direction substantially perpendicular to the body and act as a means for securing the reenforcing means to the sheet and to prevent swinging about the prong 20 as a center. The openings formed in the body assist in bonding the plastered material.

In Figure 8 is disclosed a modified form of a wire loop that has the arms twisted to form an eye 21 through which a securing means is adapted to pass. This form of wire loop is used in substantially the same manner as the wire loop previously described.

Figures 5 and 6 disclose modified forms of reenforcing means composed of body members 22 and 22' having openings 23 in the body of the reenforcing means. In Figure 5 additional openings are formed near one end for the reception of securing means. This means may be nails or any other suitable securing means.

The modified form shown in Figure 6 has one end 25 bent at substantially right angles to the main body and shaped to act as securing means for fastening to the sheet and a prong 26 extends from the body to act as means for preventing the reenforcing means from swinging about the prong 25 as a center.

In Figure 1 is shown a modified form which may be considered in the shape of letter S. The body portion indicated at 26' and secured to the sheet 11 by prong 16. This type is used as indicated in Figure 1 at 27.

It is to be understood that the reenforcing means may be used on either side of the joint depending on whether the finished wall is to be plastered or not.

For the purpose of this application there has been set forth certain structures and certain methods of using the same but it is to be understood that they are here presented for illustrated purposes only and are not to be accorded any interpretation such as might have the effect of limiting what is claimed as the invention short of its true and comprehensive scope in the art.

What I claim is:

1. In combination with studdings, slabs of material for receiving plaster secured to and bridging the studding and formed to provide an overlapped joint which extends transversely of the studding, a plurality of looped reenforced structures each secured to one of two contiguous slabs and extending across the corresponding lap joint, to reenforce and assist in bonding plaster, each of said looped structures having prongs which are driven into one slab, at a point between one end and the joint whereby the swinging movement of the looped structure is prevented.

2. A plaster receiving base of fiber composition composed of a plurality of slabs formed and laid

to provide an interlocked joint which has a tendency to remain closed under applied plastering pressure and a plurality of means arranged across the joint to assist in bonding plaster and reenforcing the joint, each means having two spaced arms, each arm having a prong driven into one and the same slab at a point between one end and joint so as to prevent swinging of each of said plurality of means.

3. A plaster receiving base of fiber composition, composed of a plurality of slabs formed and laid to provide an over-lapped, inter-locked joint and a plurality of means having spaced arms arranged across the joint to reenforce the joint and assist in bonding plaster, each means having prongs driven into one and the same slab, at a point between one end and the joint which will prevent swinging of said plurality of means, the terminals of the arms having portions extending substantially parallel to one another and the prongs being formed at the end of said extending portions.

4. A wall structure including studding, slabs of fibrous material secured to and bridging the studding and provided with over-lapped interlocked joints which extend transversely to the studdings that has a tendency to remain closed under applied plaster pressure and a plurality of rigid means each rigidly attached to the plaster receiving faces of the slabs and extending across the over-lapped joints, thus reenforcing the joint and assisting in bonding plaster applied to the slabs.

5. An article of manufacture comprising a sheet of fibrous composition board capable of acting as a plaster receiving base and provided with a tongue on one edge and with a depression on the opposite edge, to cooperate with a like sheet to form an over-lapped inter-locked joint and flat rigidly attached means on one face of the sheet adjacent the edge provided with a tongue and extending outwardly there beyond.

6. An article of manufacture comprising a sheet of fibrous composition board capable of acting as a plaster receiving base, opposite edges on two sides provided with a tongue and a depression to cooperate with a like sheet to form an overlapped, air-tight joint, and means attached to one face of the sheet adjacent one edge and extending outwardly therebeyond, said means themselves being so formed and attached that swinging of said means is prevented.

7. A wall structure including studdings and at least two sheets of plaster base material secured to and bridging the studding and cooperating to form an air-tight interlocked joint which will not have a tendency to open under applied plastering pressure, and a flat reenforcing device arranged to one face of the wall across the joint and means attaching said device to the face of one of the sheets, including fastening means spaced and disposed between one end of the device and the joint.

8. In combination with studding slabs of material secured to and bridging the studding, laid and formed to provide an over-lapped joint which extends transversely of the studding, a plurality of relatively flat reenforcing structures each attached to one of two contiguous slabs and extending across the corresponding lapped-joint, each of said relatively flat structures having prongs which are driven into the slab, two of said prongs at a point inwardly of one end of said structure whereby swinging movement is prevented.

9. An article of manufacture comprising a sheet of fibrous composition board capable of acting as plaster receiving base, opposite edges on two sides provided with a tongue and a depression to co-

operate with a like sheet to form an inter-locked, air-tight joint and substantially flat means attached to one face of the sheet adjacent one edge and extending outwardly there beyond in substantially coplaner relation to that face and prongs extending from said body and driven into said sheet to prevent swinging of the said means from side to side.

10 A plaster receiving base of fiber composition composed of a plurality of slabs formed and laid to provide an over-lapped joint and a plurality of means arranged across the joint to reinforce the joint and assist in bonding the plaster, each means consists of a relatively flat member and having at one end thereof three spaced prongs, two of said prongs arranged between the joint and the third prong to prevent swinging of the reinforcing means.

20 11. A plaster receiving base of fiber composition composed of a plurality of elements laid in substantially coplaner relation to form an inter-locked joint and means of substantial width extending across the joint and lying only on one side of the plaster receiving base, a prong extending from said means for securing to said plaster receiving base and two prongs extending from said means and located between the first mentioned prong and the joint, to prevent swinging movement of said means.

30 12. A plaster receiving base of fiber composition, composed of a plurality of slabs, each slab provided with a tongue on one edge and a groove on the opposite edge and laid to provide inter-locked joint which does not have a tendency to
35 open by applied plastering pressure, means ar-

ranged across the joint and attached to one face of each slab to assist in bonding plaster and reinforcing the joint and prongs extending from said means at a point between one end and the joint to prevent swinging of said means.

5 13. In a wall, moisture absorbable plaster receiving base composed of a plurality of fibrous slabs formed and laid to provide an interlocked substantially air tight joint which remains closed under applied plastering pressure and rigid means attached to one face of each slab and extending across the interlocked joint to reinforce the joint and assist in bonding plaster.

10 14. In combination with studding, slabs of fibrous material for receiving plaster secured to and bridging the studding, said fibrous material formed and laid to provide an overlapped, substantially air tight joint which extends transversely of the studding, a plurality of structures extending across the overlapped joint to reinforce the joint and assist in bonding plaster, said structures having penetrating prongs driven into one slab at a point between one end of the structure and the joint whereby a swinging movement of the structure is prevented.

25 15. In a wall, sheets of composition fibers formed and laid to provide overlapped, substantially air tight joint and reinforcing means attached to one sheet and extending across the overlapped joint, said reinforcing means provided with penetrating prongs driven into the sheet between the joint and one end of the reinforcing means whereby swinging movement of reinforcing means is prevented.

35 GEORGE H. ELLIS.