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BUILDING STRUCTURE

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Fig. 1

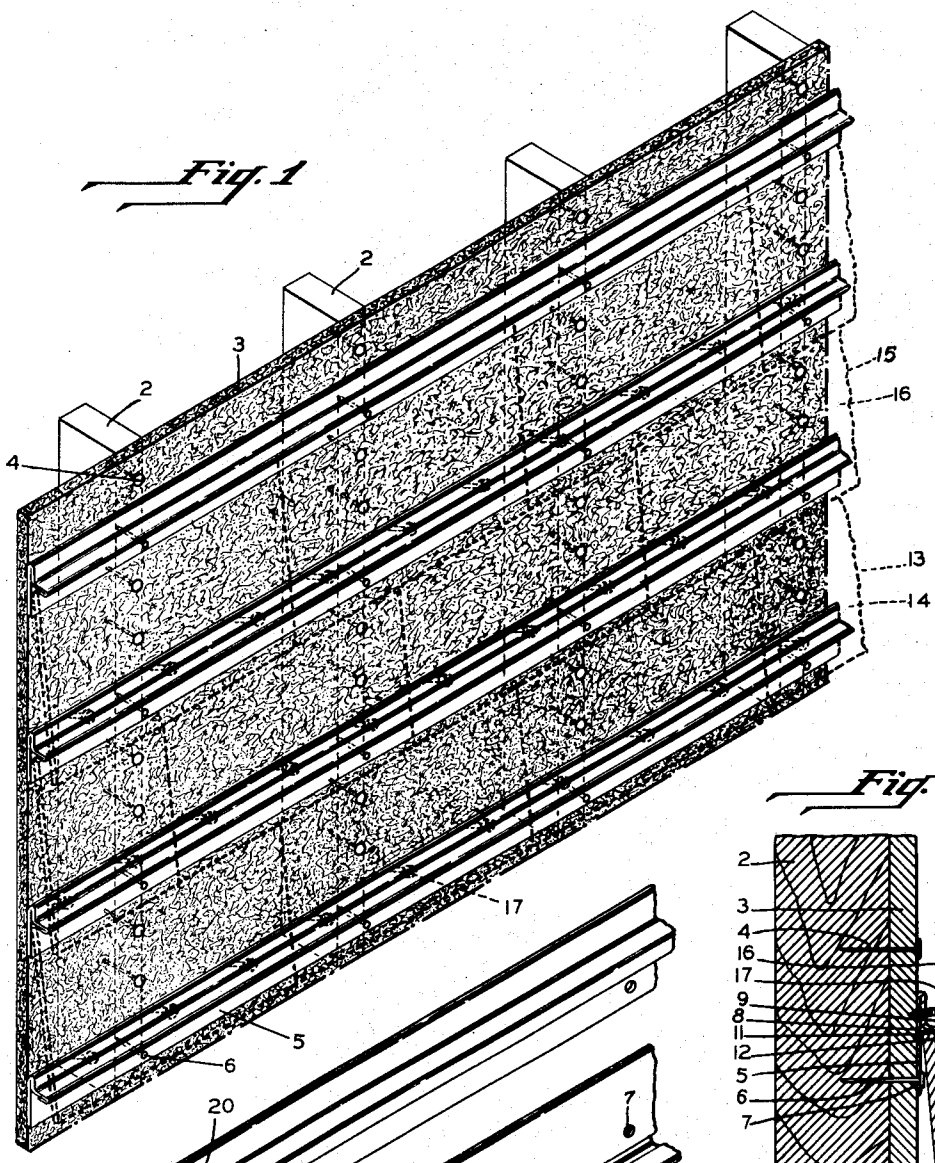


Fig. 2

Fig. 3

Fig. 4



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BUILDING STRUCTURE

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Our invention relates to building structures and is concerned particularly with a building structure including a unique siding construction.

An object of the invention is to provide a building structure having siding or similar units disposed over an insulation course without wood sheathing or wood nailing strips interposed between the framework and the siding units for the reception of fastening means for securing the siding units to the structure.

Another object of the invention is to provide an insulated siding construction including insulation sheathing attached to the framework of the building to provide a wall structure in which standard width door and window frames may be used.

Another object of the invention is to provide a building structure including a sheet metal siding unit attaching strip which serves as the sole connection between the siding units and the framework.

Other objects of the invention will become apparent from consideration of the detailed description of certain preferred embodiments of the invention which follows.

The preferred structure includes a supporting framework, generally in the nature of wooden studs and suitable bracing members, with rigid insulation board disposed over the framework and secured thereto by nailing. Sheet metal siding unit attaching strips are disposed over the insulation, generally in spaced horizontal relationship where the siding units are to be erected in horizontal tiers. The strips are secured to the framework by nails which are received in openings provided in the strips and pass through the insulation board into the framework. The sheet metal attaching strip is generally bent to the shape of an angle in order to give it substantial rigidity; and, in the preferred embodiments of the invention, the attaching strip is provided with a recess or pocket for the reception of the upper edge of one tier of siding units. The siding units are erected in overlapping tiers with fastening means for the overlying tier passing through the siding units and being received directly in the attaching strip and held thereby to thus secure the finishing material in place. The upper edge of each tier is, as mentioned above, preferably received within a recess or pocket in the next upper attaching strip to provide a structure in which each unit is secured at both the top and the bottom to horizontally spaced sheet metal siding attaching strips.

In order that the invention may be fully understood, certain embodiments of the invention will

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be described in conjunction with the attached drawing, in which:

Figure 1 is a perspective view of a wooden frame siding construction embodying the invention;

Figure 2 is a sectional view showing a portion of the structure of Figure 1;

Figure 3 is a perspective view of a modified sheet metal attaching strip; and

Figure 4 is a perspective view illustrating another modified sheet metal attaching strip.

Referring to Figure 1, the structure includes a supporting framework which may be in the nature of wooden studs 2 erected in the customary fashion. Attached to the studs 2 are pieces of rigid insulation board 3 which may be of the nature of asphalt-coated insulation sheathing which customarily is provided in sheets 24" x 48" x ½" or 25/32" in thickness. The insulation sheathing 3 is secured to the studs 2 by fasteners 4 which may be large-headed galvanized roofing nails commonly used for that purpose. The studs 2 are generally spaced on 16" centers which permits the erection of the sheathing board 3 with the vertical joints on the studs. If desired, of course, insulation sheathing board of larger dimensions may be employed, such as 4' x 8', 4' x 10', or 4' x 12'; for example, erected vertically. It is for that reason that no joints have been shown in the insulation course 3 in the illustration of Figure 1.

The insulation 3 while capable of receiving fastenings is of a generally open porous nature, and it is not capable of holding conventional fastening means with any degree of security, making it undesirable to secure the siding material in unit form directly to the insulation material. Most siding units, such as asbestos cement shingles, wooden shingles, and the like, are in units the length of which does not permit the direct attachment of the siding units to the studs by fastening means passing into the studs through the insulation. Asbestos cement shingles are generally 12" x 24" x ⅛"; and where a staggered joint finish is desired in the siding, the studs would have to be placed on 12" centers, making the structure commercially unattractive from a cost standpoint.

Heretofore, in insulated structures of the general type shown in Figure 1, for example, it has been customary to secure 1" x 2" nailing strips over the insulation with fastening means passing through the nailing strips and the insulation into the vertical studs. These nailing strips have been spaced horizontally so as to receive the fastening means for securing the siding units

in place. This has increased the over-all thickness of the wall and has required the use of special width door and window frames, increasing the cost of the construction.

In the construction of the present invention, sheet metal siding unit attaching strips **5** are disposed over the insulation **3**, and fastening means such as nails **6** are driven through openings **7** provided in the attaching strip and through the insulation layer **3** into the studs **2**. Generally, one nail is provided at each stud. The sheet metal attaching strip is of a length great enough to span a number of studs and preferably is furnished in strips 8' long, although shorter strips may be employed. The strip may be formed of 28 gauge galvanized iron. In the embodiment shown in Figures 1 and 2 the sheet metal siding attaching strip includes a base **8** and an upstanding flange **9**. This provides an angle construction which renders the strip rigid in a longitudinal direction. In order to reinforce and further rigidify the base **8**, the sheet metal at the flange **9** is preferably bent back upon itself to form an overlap **10**. This reinforcing is particularly important where fastening means such as drive screws are to be driven directly into the sheet metal strip at points between the studs **2**.

There is a recess **11** defined between the base **8** and the terminal edge **12** of the inwardly bent portion **10** of the flange **9**, such recess providing a pocket for the reception of the upper edge of a tier **13** of siding units **14**. The distance the flange **9** extends from the base **8** will be determined by the amount it is desired to have the courses or tiers project from one another and the pitch of the courses. Where a substantial pitch is desired to give the effect of thick siding units and an appearance of depth by a heavy shadow line, the flange **9** will extend a greater distance from the base **8** than otherwise. In the embodiment illustrated in Figures 1 and 2 the channels may have a base portion **8** which is 1'' wide, a flange **9** which is ½'' high, and a reinforced overlapped portion **10** which is ⅜'' wide to provide a recess **11** extending ⅛'' from the base **8** to the terminal edge **12** of the portion **10**.

Referring to Figure 2, the upper edges of the siding units **14** of the tier **13** are disposed within the recess or pocket **11** of the sheet metal siding attaching strip **5** and are thus securely held against outward displacement. The next upper tier **15** of siding units **16** is disposed in overlapping relationship with respect to the lower tier **13**. Fastening means **17** pass through openings provided in the siding units **16** and are received within the sheet metal siding attaching strip **5** at the base portion **8** thereof. Thus the units are held securely in place, with the sheet metal attaching strip serving to receive and hold the fasteners for the siding unit.

Drive screws are preferably employed for securing the siding to the sheet metal attaching strips, for they hold securely and do not require any alignment of openings in the siding units with corresponding openings in the attaching strip and thus facilitate erection. Sheet metal screws may be used, but in such circumstances openings should be provided in the attaching strips to correspond with the openings in the siding units through which the fastening means pass. Barbed nails or other fastening means which may be received in and securely held by the sheet metal attaching strips may be employed. As indicated in Figure 1, where asbestos cement singles 12'' x 24'' are employed three drive screws **17** may be provided for each unit.

With this structure the siding units may be disposed with staggered joints as shown in Figure 1, and no care need be taken to provide for the joints to overlie the supporting framework since the units are held in place solely by their connection to the sheet metal attaching strips.

The sheet metal attaching strips may take any one of a number of forms. A modified attaching channel is shown in Figure 3. It is designed particularly to provide a siding construction which will permit the use of standard width door and window frames. It includes a base **18**, an upstanding flange **19**, an overlapped reinforcing portion **20**, and a stop portion **21** defining a recess **22** for the reception of the upper edge of a tier of siding units. This structure does not differ essentially from the structure shown in Figures 1 and 2 in the mode of its use. It does provide a deeper stop portion **21** for the reception of the upper edges of the siding units. With the attaching strip the depth of the flange **19** will generally be only sufficient to accommodate the siding unit and thus not increase the over-all thickness of the wall structure. With asbestos cement siding units ⅛'' thick the recess **22** will be about $\frac{3}{16}$'', and thus the units will lie snugly within the recess when in their inclined position and the adjacent tiers will be separated at the overlap by the thickness of the metal from which the strip is formed. This will not give the heavy shadow line effect, but it will provide a structure which will receive door and window frames of standard width.

A further modification of the sheet metal attaching strip is shown in Figure 4 where the base **23** is overlapped at **24** throughout substantially its whole extent, and the upstanding flange **25** is bent back upon itself as indicated at **26** to provide a suitably reinforced angular structure which will permit siding fastening means such as drive screws to be driven directly into the portions **23—24**, even though such fastening means be disposed between the supporting studs. In the structure shown in Figure 4, there is no recess for the reception of the upper edges of the siding units. The flange **25** will normally be of a depth which is about equivalent the thickness of the siding units, and the overlapping tier will lie in engagement with the lower tier and prevent outward displacement of the upper edges of the lower tier.

If the insulation sheathing is not adequately waterproof, strips of asphalt-saturated paper may be disposed behind the shingles, overlapping the joints; or the sheathing may be covered with 15-pound asphalt-saturated builder's felt in accordance with current practice in the building industry.

While the invention has been illustrated with particular reference to siding units such as asbestos cement shingles, slate, wooden shingles, and the like, other siding materials may be erected against the framework and insulation with the fastening means for the siding received in the sheet metal attaching strips and held thereby to secure the siding material in place. Metal studs or other supporting structure may be substituted for the wooden studs **2**.

While the invention is particularly applicable to side wall siding structures, the invention is not limited thereto since it will be applicable to other structures of similar nature.

While we have illustrated and described certain preferred embodiments of our invention, it will be understood the same is not limited thereto but may be otherwise embodied and practiced within the scope of the following claims.

We claim:

1. A building structure comprising a supporting framework, a layer of rigid insulation board which is incapable of holding conventional fastening means with any degree of security attached to the supporting framework, a sheet metal finishing material attaching strip, fastening means passing through said attaching strip and through said insulation board and into said framework to secure said attaching strip to said supporting framework, courses of exposed finishing material overlying said insulation board, and fastening means passing through said finishing material and received in said sheet metal attaching strip and securely held substantially entirely thereby to secure said finishing material to said attaching strip.

2. A building structure comprising a plurality of vertical supporting members disposed in spaced relationship, insulation board which is incapable of holding conventional fastening means with any degree of security attached to the supporting members, horizontal sheet metal siding attaching strips disposed over said insulation board and spanning a plurality of said supporting members, said strips each having a base and an angularly projecting flange, fastening means passing through said base and said insulation board and into said vertical supporting members securing said horizontal attaching strips to said vertical supporting members, siding units disposed in overlapping horizontal tiers covering said insulation board, one of the edges of the units of one tier being disposed below said flange, the opposite edge of an overlapping tier being disposed over said flange, and fastening means passing through said overlapping tier and received in said base of said attaching strip and securely held substantially entirely thereby to secure said overlapping tier to said strip.

3. A building structure comprising a plurality of vertical supporting members disposed in spaced relationship, insulation board which is incapable of holding conventional fastening means with any degree of security attached to the supporting members, a plurality of horizontal sheet metal siding attaching strips disposed in vertically spaced relationship over said insulation board, said attaching strips comprising a base portion, an angularly projecting flange and a stop portion depending from the flange to form a pocket, fastening means passing through said attaching strips and insulation board into said vertical supporting members and securing said horizontal attaching strips to said vertical supporting members, siding units disposed in horizontal overlapping tiers, each of said units having an upper edge received in the pocket of one attaching strip with its lower edge overlapping the next lower attaching strip and overlying said flange and stop portion, and fastening means passing through each of said units adjacent the lower edge thereof and received in the next lower attaching strip above the pockets therein and securely held substantially entirely thereby.

4. A building structure comprising a pair of spaced vertical supporting members, an upper horizontal sheet metal attaching strip, a lower horizontal sheet metal attaching strip spaced vertically from the upper strip, each of said strips including a base, a projecting flange and a depending stop defining a pocket, fastening means passing through the base of each strip and into said supporting members for securing said strips to said supporting members, a plurality of covering units each having an upper edge disposed in the pocket of the upper strip and overlying the pocket of the lower strip, and fastening means passing through said units and received within said lower attaching strip and securely held substantially entirely thereby for securing said units over said supporting members.

5. A building structure comprising a supporting framework, a layer of rigid insulation board which is incapable of holding conventional fastening means with any degree of security disposed over the framework and securely attached thereto, a sheet metal attaching strip, means for securing said strip to said framework, said strip including a base lying in engagement with the insulation board and an upstanding angularly projecting reinforcing flange, courses of exposed finishing material overlying the insulation board with the upper edge of one course abutting said flange and with the lower edge of the next upper course overlying the upper edge of the next lower course, and fastening means passing through said finishing material adjacent the lower edge thereof and received in said attaching strip and securely held substantially entirely thereby to secure said finishing material to said strip.

6. A siding attaching strip for use in a building construction including an insulating layer, comprising: a strip of sheet metal arranged to overlie said insulating layer and of adequate length to be secured to spaced supporting members of said construction to receive a tier of siding elements, said strip being bent upon itself to form a flat base with an overlapped reinforcing portion overlying the base, and an angularly directed flange extending outwardly from the base and adapted to position a tier of siding elements in aligned position and to space overlapping siding units therefrom, said strip receiving and holding fastening means in the overlapped portion thereof for attaching the siding units thereto.

7. An attaching strip for use in a building construction which includes an insulating siding layer, comprising: a strip of sheet metal arranged to overlie said insulating layer and of adequate length to be secured to spaced supporting members of said construction to receive a tier of siding elements, said strip being bent upon itself to form a flat base with a reinforcing portion overlying the base and disposed substantially parallel thereto, an angularly directed upstanding flange extending from the reinforcing portion, and a stop portion depending from the flange and lying generally parallel to the base, said flange and stop portion defining a pocket adapted to receive a tier of siding units, with said stop portion overlying the upper edges thereof and limiting outward displacement of the siding units, and the reinforced base portion receiving and holding fastening means passing through an overlapping tier of siding units for attaching said siding units to the strip.

8. An attaching strip for use in a building construction including an insulation layer, comprising: a strip of sheet metal arranged to overlie said insulation layer and of adequate length to be secured to spaced supporting members of said construction to receive a tier of siding elements, said strip being bent upon itself to form a flat attaching base with an overlapping reinforcing portion overlying the base and extending generally parallel thereto, an angularly directed flange extending outwardly from the base, and

an overlapped stop portion folded over the flange and extending generally parallel thereto and serving to reinforce the flange, said base receiving and holding fastening means in the overlapped portion thereof for attaching siding units to said strip.

9. A siding attaching strip for use in a building construction including a supporting framework with insulation material secured thereto, comprising: a strip of sheet metal arranged to overlie said insulation material and of adequate length to be secured to spaced supporting members of said construction to receive a tier of siding elements, said strip being bent upon itself to form a flat attaching base with an overlapping reinforcing portion overlying the base and extending generally parallel thereto, an angularly directed flange extending outwardly from the base, an overlapped stop portion formed on said flange and extending generally parallel thereto, said stop

portion terminating short of said base to define a pocket adapted to receive a tier of siding units, with said stop portion overlying the upper edges thereof and limiting outward displacement of the siding units, and the overlapped base portion receiving and holding fastening means passing through an overlapping tier of siding units for attaching said units to the strip.

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