May 3, 1938. G. E. SHIPWAY 2,116,452

STRUCTURAL ASSEMBLY AND METHOD OF MAKING THE SAME

Filed Sept. 10, 1935

Fig. 1.

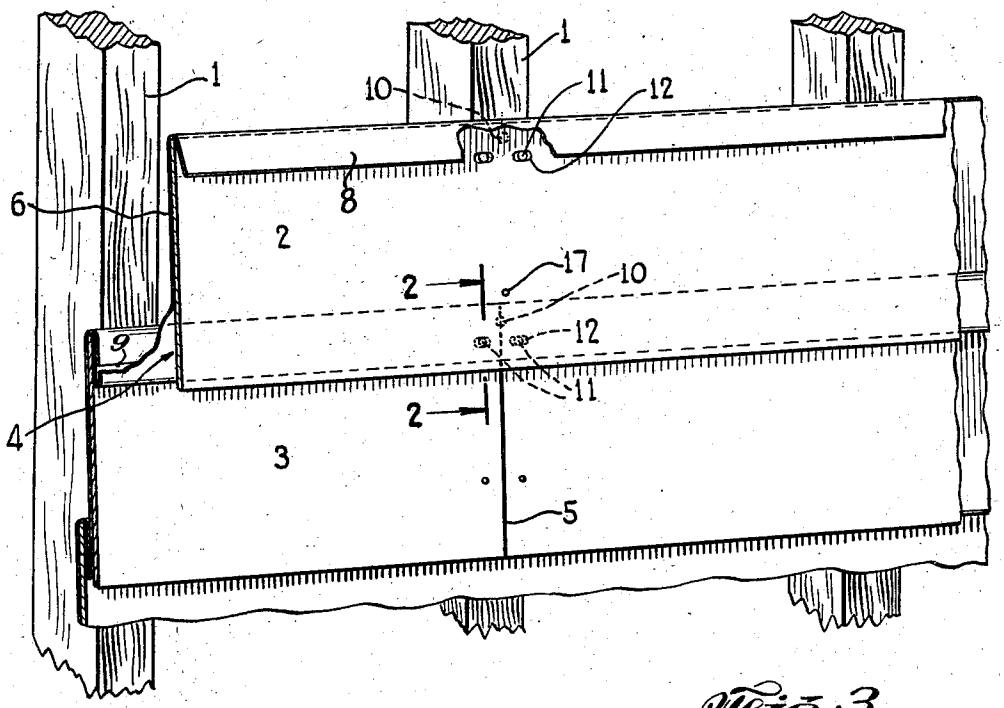


Fig. 2.

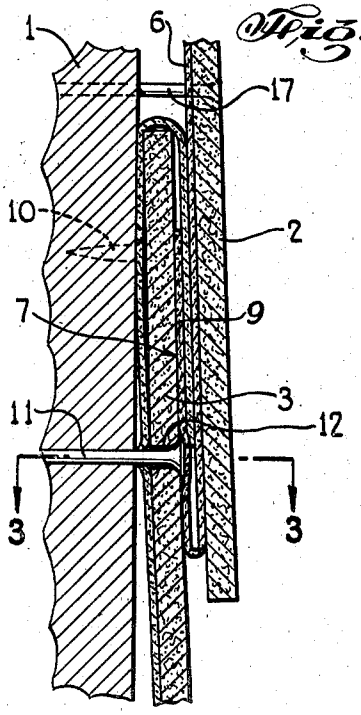
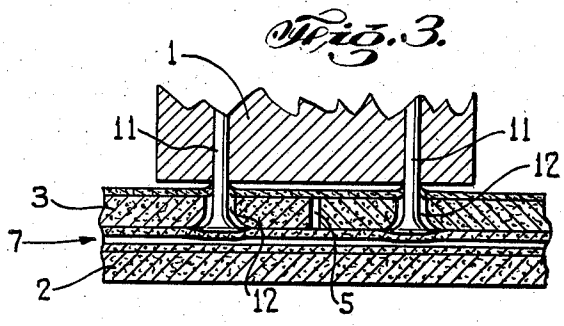


Fig. 3.



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Patented May 3, 1938 2,116,452

UNITED STATES PATENT OFFICE

2,116,452

STRUCTURAL ASSEMBLY AND METHOD OF MAKING THE SAME

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Application September 10, 1935, Serial No. 39,885

9 Claims. (Cl. 20—5)

This invention relates to a structural assembly adapted for use as siding of a building and the method of making the same.

In the making of siding assemblies, such as those having units arranged in the manner of clapboards, it has been customary, heretofore, to use a supporting substructure including studs and sheathing, with the clapboard units secured over the substructure and forming horizontal overlaps between adjacent courses of the units. When rain penetrates the joints between adjacent courses of the clapboards or the vertical joints between abutting units in a given course, the water may run downward, uninterruptedly, between the sheathing and the clapboard facing.

There has been another disadvantage in the use of composition boarding that, because of the cost for a given thickness, is commonly available only in clapboard-like units that are relatively thin, as compared with lumber conventionally used for the purpose. Namely, when such thin units, of a hardened composition of asbestos and Portland cement or the like, for example, are assembled, as formerly, in the manner of clapboards, the thinness of the units decreases the amount of offset between adjacent courses and reduces the resulting shadow effect, to such an extent that artificiality of the structural material is indicated.

It is an object of the present invention to provide a siding assembly overcoming the disadvantages stated above. Other objects and advantages will appear from the detailed description that follows.

The invention comprises the novel features of the assembly, water-impermeable sealing member, and method of making the assembly, hereinafter described and illustrated, particularly the means for overcoming the said disadvantages of conventional assemblies.

A preferred embodiment of the invention is illustrated in the attached drawing and the invention will be described in connection therewith.

Fig. 1 is a perspective view of a siding assembly made in accordance with the present invention, partly broken away for clearness of illustration.

Fig. 2 is a vertical sectional view on line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 2.

The sectional views, Figs. 2 and 3, are on a somewhat enlarged scale as compared with the scale of the other figures.

In the various figures like reference characters denote like parts.

There is shown an assembly, adapted for use as the siding of a building or the like, comprising a supporting substructure including studs 1 that may be wood and units of facing material arranged as a plurality of courses 2 and 3, the lower edge of an upper or succeeding course overlapping the upper edge of a lower or preceding course, as illustrated at position 4 (Fig. 1) and as shown in greater detail in Fig. 2. Within a given course there may be a plurality of facing units displaced horizontally with respect to each other and meeting in flush relationship, to form a vertical joint or joints 5.

The facing units may be of any suitable type, say, of the asbestos-cement composition previously described. They may be thin, say, about $\frac{3}{8}$ to $\frac{1}{2}$ inch in thickness. The units are preferably semiflexible, that is, they may be slightly bowed by the means described below.

Disposed between the facing units and the substructure is water-impermeable sheet material 6, as, for example, asphalt-impregnated rag felt of the type commonly used as roofing paper or so-called asphalt shingles. This sheet material is flexible and may be folded to give an article possessing appreciable resilience or tendency to straighten out at the position of bending. In my improved assembly, this material constitutes a weather-tight seal that is suitably continuous over the substructure except at positions at which the edges of two strips of the material are plied together as shown at 7. Each strip of this material has a folded portion 8 along the top and a folded portion 9 along the bottom. The folded portions 8 and 9 extend between the overlapping horizontal joint portions of adjacent courses of facing units with a folded portion 9 of one strip inserted behind the folded portion 8 of the next lower strip. The main portions of the said strips of material are continuous with the folded portions and extend continuously behind the facing units and the vertical joints 5 therebetween, the sheet material thus forming a sheathing extending between the substructure and all parts of individual ones of the facing units.

With such a sealing member used in my assembly, water that penetrates through the vertical joints 5 is deflected to the outside of the facing units of the immediately underlying, lower course. Furthermore, the water-impermeable sheet material disposed between the overlapping portions of the facing units, at their horizontal joint portions, forms a gasket adapted to min-

imize rattling and penetration by wind or rain and to prevent a drumming sound when the assembly is struck. Also, the gasket spaces the butt of the units of the overlying course from the underlying course, to give increased shadow effect and appearance of thickness of the facing units, particularly when the folded portion extending between the several courses is of multiply thickness, as illustrated. Finally, this shadow effect is increased and the flexible sealing material is caused to contact closely with the overlapping portions of adjacent courses, when a folded portion of the sheet material is disposed in the horizontal joints, because each bend causes the material on the two sides of the bend to spread apart and contact resiliently with facing units of the courses 2 and 3.

The means securing the water-impermeable sheet material and the facing units to the substructure are preferably nails or the like. Thus, the water-impermeable material may be secured to the substructure by large-headed tacks or roofing nails 10 extending through the sheet material and into the stud, at a position behind the rear or lower course at a horizontal joint. The said rear course is secured as by nails 11 to the substructure. These nails 11 are driven, also, at the horizontal joint portion but preferably do not extend through the sheet material disposed in the joint, whereby the sheet material is preserved imperforate and, therefore, is adapted to shed water more certainly than if penetrated by the means 11. Also, there is a considerable space between the position of the fastening means 11 and the upper edge of the unit constituting the lower course. When a facing unit is held tightly against the substructure, as by firm driving of the nail 11, the facing unit is slightly bowed inwardly toward the position of nailing, this causing the lower edge portion of the facing unit (which extends over and outside a lower course) to be deflected away from the substructure and to give thus an attendant increase in the desired shadow effect at the exposed horizontal joint.

The nails 11 have preferably a wide head and pass through preformed holes 12 in the facing units.

The preformed holes 12 may be slots having each their longest dimension approximately parallel to the general direction of extent of the overlapping portions of the adjacent courses of facing units. In other words, the holes are oversize in one direction but narrow in the direction of the width of the overlapping portions, so that the amount of overlap required to extend safely below the holes is minimized and, on the other hand, lateral shifting of the units, as on expansion or contraction, is permitted.

Finishing nails 17, such as those of cadmium-plated steel, or like means may be used to hold the facing units to the substructure at positions below those of the nails 11. The nails 17 may penetrate the exposed portions of the units, suitably, at positions near to but slightly above the overlap between adjacent courses.

The details that have been given are for the purpose of illustration, not restriction. It is intended, therefore, that variations within the spirit of the invention are to be included within the scope of the appended claims.

What I claim is:

1. A siding assembly of a building comprising a supporting substructure, units of facing material arranged in a plurality of horizontal courses having overlapping portions between the lower edge of one course and the upper edge of a lower course and including in each course a plurality of the facing units meeting end to end, in flush relationship, to form a vertical joint, water-impermeable flexible sheet material disposed between the supporting substructure and the facing units and forming a continuous sheathing between all parts of individual ones of the said units and the substructure, a portion of the sheet material extending between the said overlapping portions of the facing units, a part of the sheet material, continuous with the said portion thereof, extending continuously behind the vertical joint, and means securing the facing units and sheet material to the substructure, whereby water penetrating through the said vertical joints is deflected to the outside of the course of facing units therebelow.

2. A siding assembly, as described in claim 1, the portions of the sheet material extending between the said overlapping portions of the facing units being in the form of folds having multiply thickness and being adapted to spread apart at the position of bending, whereby the overlapping portions of the facing units are spaced substantially from each other and the folded material is caused to contact resiliently with the overlapping portions of the facing units.

3. A siding assembly, as described in claim 1, the portion of the sheet material extending between the said overlapping portions of the facing units being imperforate and the means securing the facing units to the substructure being disposed behind the said portion.

4. A siding assembly of a building comprising a supporting substructure, facing units arranged in courses having overlapping portions forming horizontal joints therebetween, the edges of the facing units of the underlying course at the joints being provided with slots of longest dimensions substantially parallel to the general direction of extent of the said joints, and fastening elements extending each through one of the said slots and holding one of the slotted facing units to the substructure, whereby lateral movement due to expansion or contraction of the unit is permitted with a minimum of width of overlap required to cover the said slot.

5. A siding assembly, as described in claim 1, the said water-impermeable sheet material being in the form of strips arranged horizontally in the assembly, having each an upper edge portion bent forwardly and downwardly and extending over the upper edge of a course of the facing units, a main portion extending downwardly behind the said course, and a lower edge portion terminating between the overlapping portion of the said course and the next underlying course of the facing units.

6. A siding assembly of a building comprising a supporting substructure, units of facing material arranged in horizontal courses having overlapping portions between the lower edge of one course and the upper edge of a lower course, and strips of water-impermeable flexible sheet material disposed between the supporting substructure and the facing units, each of the said strips having an upper edge portion bent forwardly and downwardly and extending over the upper edge of a course of the facing units, a main portion extending downwardly behind the said course and forming a continuous sheathing between all parts of individual units of the said course and the substructure, and a lower edge portion bent backwardly and upwardly and hooked under the forwardly and downwardly bent upper edge portion of another of the said strips extending over the

upper edge of the immediately underlying course of facing units in the said assembly.

7. A siding assembly, as described in claim 6, provided with a space between the bend of the lower edge portion of a strip of water-impermeable material and the edge of the bent upper portion of the other strip engaged by the said bent lower portion of the first strip, whereby the strips hooked into each other at their edge portions may be shifted vertically with respect to each other.

8. A building assembly comprising a substructure, substantially planar facing units attached to said substructure with an edge of each succeeding unit overlapping the adjacent edge of the next preceding unit, and water-impermeable sheets disposed between the substructure and the units, each sheet being so arranged as to substantially cover the face of a unit on the side next to the substructure and to extend between the lapping portions of said unit with succeeding and preceding units, but not project beyond the overlapping portions on the exposed faces of said unit.

9. A building assembly comprising a substructure, semiflexible facing units disposed over said substructure with an edge of each succeeding unit overlapping the adjacent edge of the next preceding unit, water-impermeable sheet material disposed between the substructure and the units so as to cover the face of each unit on the side next to the substructure and extend between the overlapping portions of successive units but not project beyond the overlapping portions on the exposed faces of said units, and means located beneath the overlapping portion of each of said succeeding units for fastening the preceding unit to the substructure and for flexing said preceding unit to space its overlapping edge from the exposed face of the next preceding unit.

GEORGE E. SHIPWAY.