Nov. 4, 1952 C. S. GAGE 2,616,131

CORNER UNIT

Filed Oct. 4, 1949

Fig. 1.

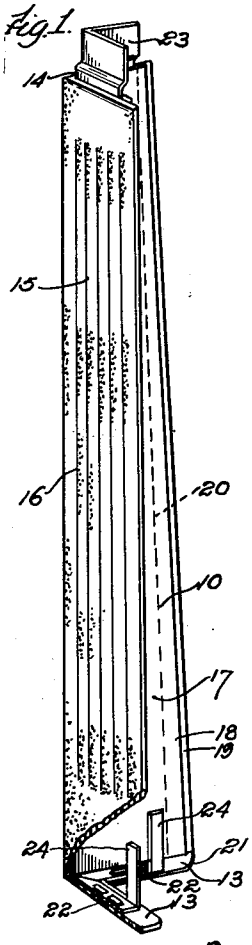


Fig. 3.

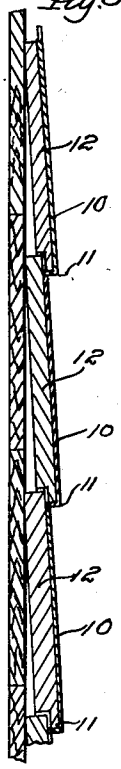


Fig. 2.

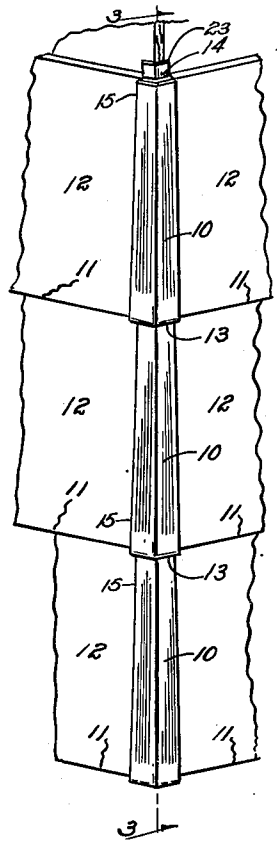


Fig. 4.

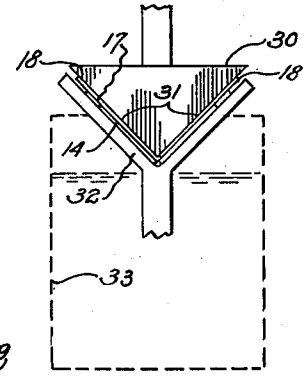


Fig. 5.

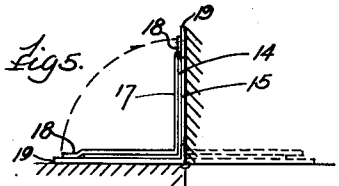
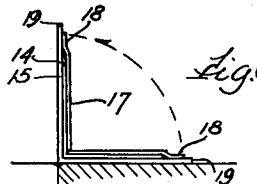


Fig. 6.



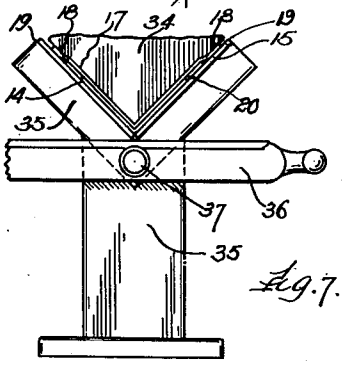


Fig. 7.

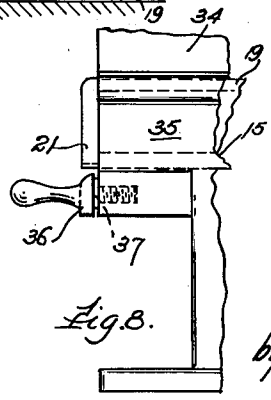


Fig. 8.

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CORNER UNIT

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1 Claim. (Cl. 20—5)

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This invention relates to building siding corner units and their manufacture.

Corner units are employed to cover the joint occurring at a building corner between the ends of the siding units at the corner. They serve for protective, concealing and decorative purposes. Siding of the character here involved generally comprises a fibrous asphalt coated insulating board having colored mineral granules embedded in the coating and embossed to simulate some pattern.

The corner units are advantageously similarly surfaced, preferably by embossing an outer layer of material similar to flexible prepared asphalt roofing so that the granular mineral surfacing presents a patterned or decorative exterior. To stiffen corner units made of flexible facing material, attempts have been made to embody therein stiff metal reinforcing, but these have not been successful, for reasons which will presently appear. The illustrative corner unit solves the problems heretofore encountered and successfully incorporates metal reinforcing.

The nature of the invention and further details thereof will be readily understood by reference to one illustrative corner unit and its method of manufacture described in the following specification and illustrated in the accompanying drawing.

In said drawing:

Fig. 1 is a perspective view of a corner unit;

Fig. 2 is a perspective view of a series of corner units applied to building siding at an exterior corner;

Fig. 3 is a vertical section taken through the siding and the associated corner units on the plane 3—3 of Fig. 2;

Fig. 4 is a diagram illustrating certain steps in the method of manufacture and assembly of the illustrative corner units;

Fig. 5 is a diagram illustrating the assembly of the unit with the outer ply;

Fig. 6 is another diagram illustrating the completion of application of the outer ply; and

Figs. 7 and 8 are diagrams illustrating the final steps in the assembly and finishing of the unit.

The illustrative corner unit 10 is designed for use with siding simulating shingles, shakes or the like wherein the lower edge of a course of simulated shingles or shakes is raised above the surface of the top of the next lower course, as at 11, thereby providing the characteristic shingle or shake textured surface with horizontal shadow lines (see Figs. 2 and 3). In the present instance this is effected by eliminating or reducing the

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depth of the rabbet at the top edge of the siding unit. Thus the ship lap construction along the lower edge of the unit instead of forming a flush ship lap joint, offsets it as shown in Fig. 3. The siding units 12 are preferably applied to the several walls meeting at a corner with the lines 11 in register with the corresponding lines of the siding on the other wall. The corner unit is provided with an angular bottom flange 13 fitting under the lower edges of aligned units at the corner (see Fig. 3).

The stiffening and reinforcement of corner units of this character by metal has not been successful where the unit has been assembled by adhesion of the outer and inner coverings to metal. While, under some conditions, the asphalt saturated plies of felt and the like, appear to be well bonded to the metal, the bond has not been reliable. In cold weather, for example, the heat conductivity of the metal chills the bonding asphalt to a point of extreme brittleness where it has little bonding strength, and the bond may easily be broken merely by ordinary handling. On the other hand, in very hot weather, the conductivity of the metal excessively softens the bonding film of asphalt adjacent the metal to a point where it substantially loses its bonding power.

The illustrative corner unit, while using a stiffening and reinforcing metal angle 14, is not dependent for its integrity on maintenance of a bond between the outer plies and the metal. As here shown, the metal angle 14 is faced on the exterior by the ply 15 which may advantageously comprise flexible coated prepared roofing carrying a surfacing of partly embedded colored mineral granules. In the present instance, the surface coating is embossed to present a series of longitudinal grooves or ribs 16 designed to harmonize with simulated wood graining on the siding. Other decorative patterns may be employed, or the surface may be plain.

The reinforcing angle is mechanically anchored between the outer ply 15 and an inner ply 17 (which may comprise asphalt saturated roofing felt) whose respective side margins 18 and 19 extend beyond the side edges 20 of the angle and are firmly cemented or bonded together by asphalt or other cement. The bond between the fibrous plies 15 and 17 is permanent and is not affected by changes in temperature. Thus the several elements of the corner unit, including the metal angle, are firmly held together in a unitary structure independently of any bond between the fibrous plies and the metal. The bottom margin

21 of the outer ply extends below the bottom of the metal angle and is bent over the metal flange 13 and securely fastened thereto by staples 22 or other reliable mechanical fasteners. The sheet metal from which the angle 14 is made of such gauge that it can readily be punctured by pronged metal staples, or equivalent fasteners. Various metals may be used for the angle, such as aluminum, galvanized iron, etc. Aluminum sheet of .020 of an inch thickness is satisfactory. Somewhat lighter gauge galvanized iron (which is stiffer than aluminum) may be used. The metal may, if desired, be perforated or roughened to improve mechanical bond of the plies thereto; but as stated above, bond of the plies to the metal alone is not depended upon to maintain the elements in assembled condition.

A margin 23 of the metal angle advantageously projects beyond the upper ends of the plies to provide an under lap for the next higher corner unit. Attaching nails may be driven through this margin. It is concealed by the lower end of the next higher corner unit; thus no attaching nails need be disclosed. If desired, one or more tongues 24 of metal integral with the angle may project upwardly from the lower flange 13 of the unit to hook under or engage the bottom edge of the siding (see Fig. 3). Nails or other fasteners may of course be driven through the side margins 18 and 19 of the outer and inner plies.

The side edges of the corner unit may advantageously taper or slightly converge toward its upper end to accentuate the inclination of the faces of the simulated shingle or shake surfaces. The upper margin 23 of the metal angle may advantageously be slightly inwardly offset to facilitate insertion below the edge 11 of the next upper course and to conform with the shallow rabbet which may occur at the top edge of the siding unit.

According to one convenient method of making the aforesaid corner unit, the metal reinforcing elements are advantageously pre-formed from strips of metal cut to the proper length and bent down the longitudinal medial axis into right-angular shape. The bottom flanges 13 may also be bent up and the projecting upper margin 23 may be offset, if this be desired. Thereafter a liner or inner ply 17 formed from previously cut material such as 30-pound saturated roofing felt, is laid in the valley of the preformed reinforcing element 14. The latter plies are preferably scored down their middle or otherwise manipulated so as to bend easily to right angles so as to lie sufficiently snugly in the metal angle to resist lateral displacement in the ensuing operation. The projecting extremity 23, which is left uncovered in the final product, provides convenient means for grasping and holding the corner unit during the successive assembly operations. The metal corner element may thus advantageously be held horizontally with the apex of the angle down so as to receive one of the bent plies 17. Thereafter the adhesive cement is applied to the under face of the projecting margin 19 of the ply 17. Such application may advantageously be effected, as illustrated in Fig. 4, while the metal angle 14 with its ply 17 is positioned against a fixed member 30 preferably having a contour 31 corresponding to the angle of the corner unit. In this position the under face of the angle and the projecting margin 19 are engaged by the applicator 32 here shown in the form of a V-shaped member having the same contour as the exterior of the corner unit. The applicator is coated with the adhesive, in this case, by immersion in tank 33 containing a thermo-plastic or air setting adhesive in liquid form, and from which it is elevated from the bath of adhesive to engage the under face of the unit as aforesaid. This operation applies adhesive both to the under face of metal angle and to the projecting margins 19. Some adhesive flows downwardly from the margins 19 between the ply 17 and the upper face of the metal angle. Applicator 32 is advantageously forced upwardly to press the ply 17 firmly against the inner face of the angle in which position it is held by the adhesive action of such adhesive as flows between the ply and the upper face of the angle, as aforesaid. The adhesive may, of course, be applied by roller or other applicators.

The adhesive may advantageously comprise so-called High Melt Point asphalt, one common example thereof being an asphalt having a melt point of about 190° F. and 20 penetration. It is maintained in tank 33 (by steam coils or other heating means) at about 375° to 400° F. to render it quite fluid.

While other cements may obviously be used, asphalt is advantageous because of its cheapness, general availability, quick setting, and its ability firmly to bond with asphalt saturated roofing felt and prepared roofing such as that comprising plies 15 and 17.

After assembly of the metal reinforcing 14 and ply 17 as aforesaid, the unit is assembled with the outer ply 15. These are advantageously precut to the proper size, and in the case of material similar to asphalt coated roofing material, it is preferably heated so as to be quite flexible. It is, of course, not heated to the point where the asphalt coating in which the mineral granules are embedded is rendered plastic or fluid. It becomes sufficiently flexible at much lower temperatures. The previously assembled unit carrying the adhesive coating on its under face is then laid with one wing or part of the angle upon a heated ply 15 laid flat with the apex of the angle registering with the median line of the ply. The adhesive on the unit immediately adheres to the inner face of the ply 15 even with the application of such slight pressure as may be exerted when the unit is held by the extremity 23 of the metal angle (see Fig. 5). Thereafter the angle is rotated to carry the other wing of the angle into contact with the ply 15 (see Fig. 6). The adhesion between the ply 15 and the ply 17 and the outer face of the angle is sufficient to carry the previously adhered portion of ply 15 and thereby to bend the latter down its median line. If desired, the inner and outer plies and a flat blank comprising the metal reinforcement may be assembled flat and then simultaneously bent to the desired angle, while the bonding cement (e. g. asphalt) is in fluid condition. After assembly pressure is applied to effect a firm bond between the elements of the unit and particularly between the margins 18 and 19.

Any appropriate pressure applying means may be employed. That here shown is embodied in a press comprising relatively movable elements 34 and 35 shaped to correspond respectively with the inside and the outside contours of the unit. These elements, after the assembled unit has been placed between them, are brought together under pressure to bond the margins 18 and 19 firmly together. While the plies are also bonded to the inner and outer faces of the metal angle, this bond, as stated above, can not be depended

upon to maintain the unit in assembled condition. Simultaneously during the pressing operation, the projecting margins 21 of outer ply 15 are folded over against the bottom flanges 13. In this position staples 22 or the like are applied to attach the margin 21 firmly.

The aforesaid bending operation may advantageously be effected by the tool 36, pivoted at 37, which is rocked first in one direction and then in the other against the margins 21 on each of the wings of the unit to fold them against the flanges 13 as aforesaid.

The illustrative corner unit being relatively thin (about ⅛ inch in thickness) projects little beyond the surface of the siding itself. Its side edges are even thinner (lacking the metal) and therefore tend to merge with the surface of the siding. The unit is therefore inconspicuous, yet because of its reinforcement it possesses the strength and stiffness of thick and unsightly corner units.

Obviously the invention is not limited to the details of the illustrative unit and its method of manufacture, since these may be variously modified. Moreover, it is not indispensable that all features of the invention be used conjointly, since various features may be used to advantage in different combinations and sub-combinations.

Having described my invention, I claim:

A corner construction for shingled siding comprising in combination a corner unit overlying and covering the corner between overlapped courses of shingles having the lower edge of one course overlapping and outwardly offset from the upper edge of the next lower course, said unit comprising a sheet metal reinforcement having the angular configuration of the corner of the courses covered thereby, inner and outer flexible cover plies covering the inner and outer faces of

said reinforcement and having their side margins extending beyond the side edges of said reinforcement, said margins being firmly bonded together beyond the side edges of said reinforcement to hold the reinforcement against lateral displacement in said unit, the combined thickness of said bonded margins being less than the thickness of said unit and overlying the shingles at the corner, said reinforcement having its side edges tapering together toward the top and having its upper end projecting above the tops of said plies and inwardly offset relative thereto and fitting under the next upper course of shingles at the corner and conforming to the contour of the underface of the latter course and with the top edge of the outer ply abutting the bottom of the next higher corner unit, the lower end of said reinforcing also projecting beyond the lower edge of said plies and being bent inwardly to form horizontal angularly disposed flanges adapted to arrest downward slipping of said plies relative to said reinforcement and lying under the bottom edges of the shingles adjacent the corner.

CHARLES S. GAGE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,038,102	Eckert	Apr. 21, 1936
2,056,521	Honan	Oct. 6, 1936
2,110,258	Blank	May 8, 1938
2,230,922	Young	Feb. 4, 1941
2,360,052	Fuller	Oct. 10, 1944
2,386,338	Norrid	Oct. 9, 1945