April 7, 1964 A. B. HAMMITT ETAL 3,127,639

SEALING MEANS FOR INTERSECTING BATTENS

Filed July 6, 1960 3 Sheets-Sheet 1

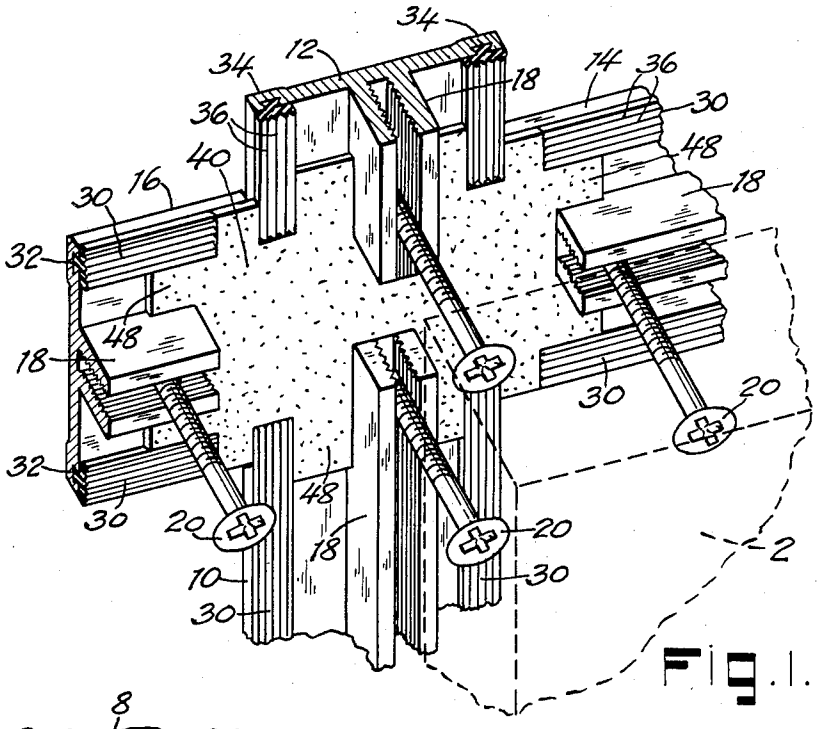

Fig. 1.

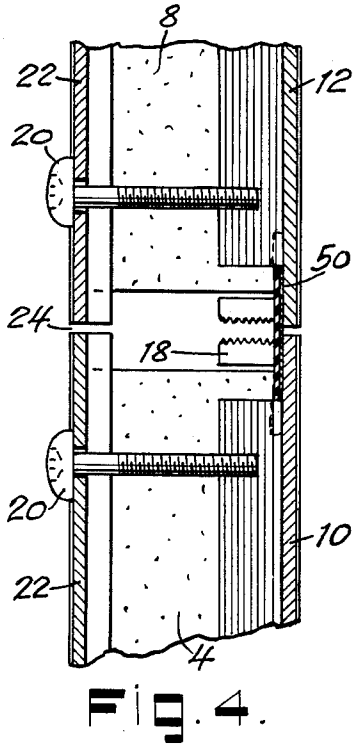

Fig. 4.

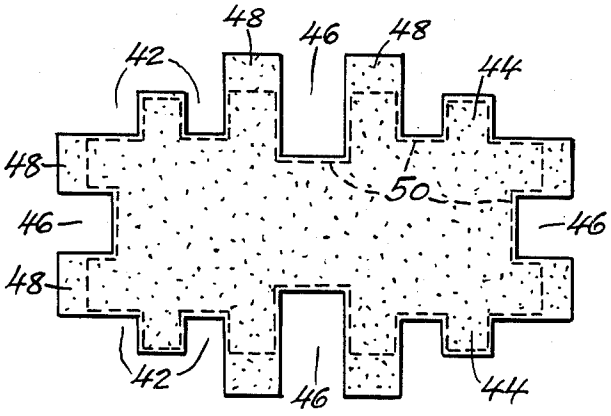

Fig. 3

INVENTORS
ANDREW B. HAMMITT
BY HERBERT L. BIRUM JR.
Albert S Perry
ATTORNEY.

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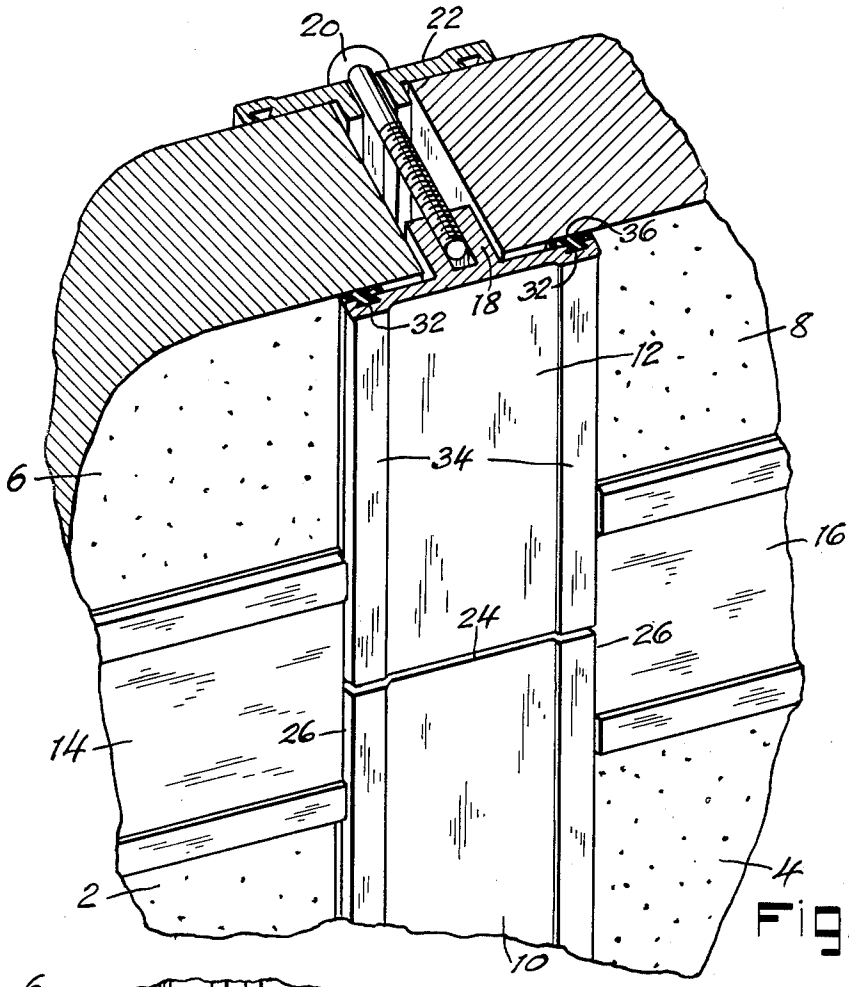

Fig. 2.

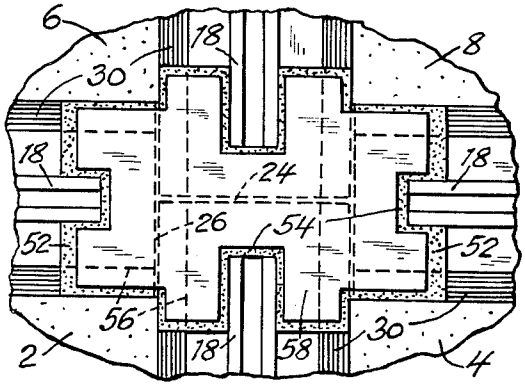

Fig. 5.

INVENTORS
ANDREW B. HAMMITT
BY HERBERT L. BIRUM JR.
Albert Sperry
ATTORNEY

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SEALING MEANS FOR INTERSECTING BATTENS

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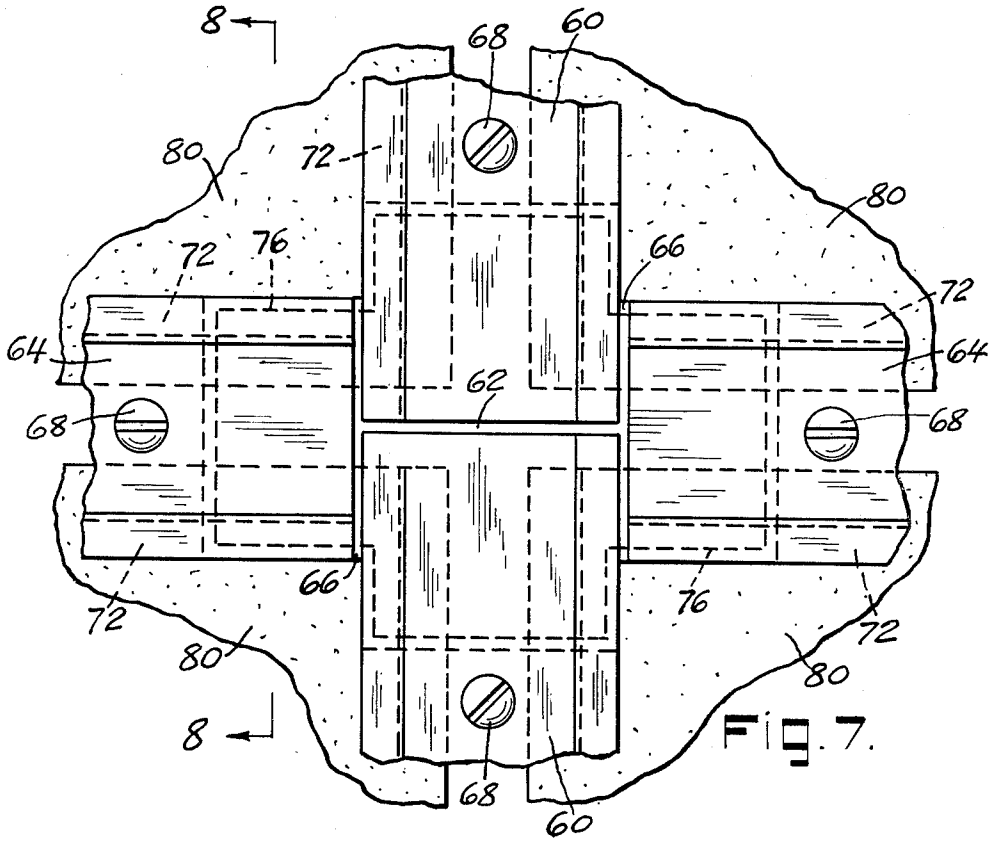

Fig. 7.

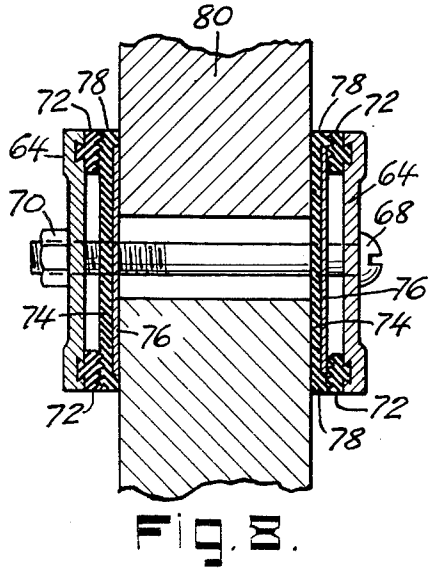

Fig. 8.

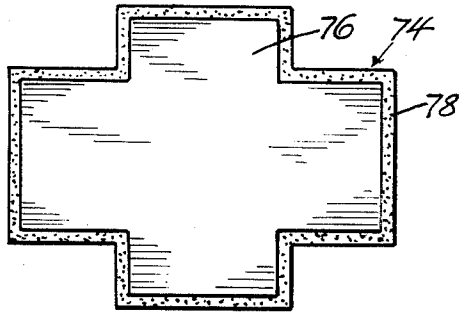

Fig. 6

INVENTOR.
ANDREW B. HAMMITT
BY HERBERT L. BIRUM, JR.
Albert Sperry
ATTORNEY

United States Patent Office

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SEALING MEANS FOR INTERSECTING BATTENS

Andrew B. Hammitt, 909 W. State St., Trenton, N.J., and Herbert L. Birum, Jr., Titusville, N.J.; said Birum assignor to said Hammitt

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5 Claims. (Cl. 20—4)

This invention relates to means for providing an effective seal at the intersection of batten strips or the like employed in securing wall forming material in place.

In our Patent No. 2,769,212 a weather plate is disclosed which has been widely used in sealing the intersection of batten strips employed for securing sheets of wall forming material in place in a building construction. Such constructions are required in order to allow for the expansion and contraction of the batten strips upon change in temperature. However, the provision of an adequate seal for such a floating connection at the intersections or ends of batten strips presents serious construction problems. Thus, the weather plates of our issued patent must be applied from the exterior of the building after the batten strips and wall forming material have been secured in place. Therefore, it is frequently necessary to use a scaffold or other support for the workman applying the weather plate. Moreover, since the weather plates are located on the exterior of the batten strips, they present projections which interrupt the smooth, clean lines of the batten strips and are sometimes architecturally objectionable.

In accordance with the present invention, constructions are provided for sealing the intersection of batten strips or the like but are constructed and arranged so that the sealing means is concealed by the batten strips and the architectural effect of the assembly is not impaired. Moreover, in many applications of the present invention, the elements may be assembled and secured in place by workmen located only on the interior of the assembly.

These advantages are attained by providing the batten strips themselves with longitudinally extending sealing means and by employing a cooperating sealing means which is located between the batten strips and the wall forming material and is engaged by the sealing strips on the battens in a manner to assure effective sealing at all points about the intersection while permitting the batten strips to expand and contract with changes in emperature. For this purpose, a new type of sealing means is employed which preferably includes a pressure plate and a compressible sealing sheet which span the space between the ends of the battens.

Accordingly, the principal object of the present invention is to provide an effective seal at the intersection of batten strips or the like employed for securing wall forming material in place.

Another object of the invention is to provide sealing means for the intersection of batten strips which may be applied to the assembly and secured in place from the interior of the assembly.

A further object of the invention is to provide sealing means for the intersection of batten strips which are located on the inner side of the batten strips whereby the architectural effect of the assembly is not impaired.

A specific object of the invention is to provide a novel type of sealing element which cooperates with sealing strips on battens and the like to afford an effective seal at the intersection of such battens while spanning the space between the ends of the battens and permitting the batten strips to expand and contract freely.

These and other objects and features of the present invention will appear from the following description thereof wherein reference is made to the figures of the accompanying drawing.

In the drawing:

FIG. 1 is a perspective showing a portion of an assembly embodying the present invention as seen from the interior of a building;

FIG. 2 is a perspective showing the complete assembly as seen from the exterior of a building;

FIG. 3 is a plan view illustrating the sealing element employed in the assembly of FIG. 1;

FIG. 4 is a vertical sectional view through the assembly of FIG. 1;

FIG. 5 is a view as seen from the interior of the assembly illustrating an alternative embodiment of the invention;

FIG. 6 is a perspective illustrating a further alternative form of sealing means embodying the present invention;

FIG. 7 is a front elevation showing an assembly embodying the sealing means of FIG. 6; and

FIG. 8 is a sectional view taken on the line 8—8 of FIG. 7.

In that form of the invention chosen for purposes of illustration in FIGS. 1 to 4 of the drawings, the assembly embodies sheets of wall forming materials **2**, **4**, **6** and **8** which are held in place by batten strips. The exterior batten strip **10** extends vertically over the spaced adjacent edges of the sheets **2** and **4**, whereas the batten strip **12** extends vertically over the adjacent edges of the sheets of wall forming material **6** and **8**. Batten strip **14** extends horizontally over the adjacent edges of the sheets of material **2** and **6** while batten strip **16** extends horizontally over the edges of the sheets **4** and **8**.

Each of the exterior batten strips **10**, **12**, **14** and **16** as illustrated is provided with a central ribbed channel portion **18** located on the inner surface thereof and positioned in the spaces between the adjacent edges of the sheets of wall forming material **2**, **4**, **6** and **8**. Bolts **20** extend through inner batten strips **22** located on the inner surfaces of the sheets of wall forming material and engage the thread engaging ribs of the channel portions of the exterior battens. The bolts **20** can thus be manipulated from the interior of the building to draw the exterior batten strips inward against the sheets of material while the inner batten strips cooperate therewith to clamp the various elements of the assembly in place.

The adjacent ends of the exterior vertical batten strips **10** and **12** are preferably spaced apart a short distance as shown at **24** to allow for expansion and contraction of the strips. Similarly, the ends of the horizontal batten strips **14** and **16** are spaced from the vertical edges of the strips **10** and **12** as shown at **26**. In this way, all of the batten strips are permitted to expand and contract freely with changes in temperature, although the spaces between the strips need only be relatively small and their spacing will, of course, depend upon the length of the strip and the variations in temperature to which the strips may be subjected. However, such spacing of the ends of the strips presents serious leakage problems which must be overcome in order to render the assembly water tight and weather tight.

In accordance with the present invention, the batten strips employed are provided with sealing strips **30** which extend lengthwise of the strips near the opposite edges thereof. These sealing strips may be formed of rubber, neoprene or other similar compressible material and as shown are secured in place by key-stone shaped portions located in correspondingly shaped slots **32** in the enlarged edge portions **34** of the batten strips. The sealing surfaces **36** of the strips **30** are preferably ribbed longitudinally or otherwise formed so that when the batten strip is drawn inward against the sheets of wall forming material, they will provide an effective, water tight seal preventing leakage along the edges of the strips.

Leakage between and about the spaced moving ends

of the exterior battens is prevented by providing a sealing sheet 40 which is located on the exterior of the sheets of wall forming material 2, 4, 6 and 8 and beneath the ends of the exterior batten strips 10, 12, 14 and 16. The sheet 40 spans the area adjacent the corners of the sheets of material and extends beyond the adjacent ends of the batten strips. The sheet 40 preferably is formed of rubber, neoprene or the like and is initially somewhat thicker and may be more yieldable and resilient than the sealing strips 30 carried by the exterior batten strips.

In the construction shown in FIGS. 1 and 3, the sealing strips 30 terminate or are cut off short at the ends of the batten strips by which they are carried. The ribbed channel portions 18 of the batten strips are also terminated or cut off short at the ends of the batten strips. The edges of the sealing sheet 40 are notched to fit closely adjacent and to embrace the sealing strips 30 and channel portion 18 but preferably do not project beyond the side edges of the batten strips. Thus, as shown in FIGS. 1 and 3, the sealing sheet 40 is square or rectangular in its general outline but is provided with notches 42 for receiving the ends of the sealing strips 30. The projection 44 between the notches 42 is designed to extend outward between the adjacent ends of the sealing strips at the corner of right angularly positioned batten strips. Similarly, each edge of the sheet 40 is provided with a central notch 46 for receiving the end of the channel portion 18 of a batten strip, and the projections 48 of the sealing sheet are designed to be located between the edges of the channel portions and the sealing strips 30.

In this way, the sealing sheet 40 not only spans the area between the corners and edges of the sheets of wall forming material but also surrounds and embraces the channel portions 18 and the sealing strips 30 of the exterior battens. Moreover, by forming the sealing sheet of resilient material which is softer and somewhat thicker than the sealing strips 30, the operation of tightening the bolts 20 serves to compress the sealing sheet so that it expands laterally in all directions and is urged into sealing engagement with the wall forming sheets 2, 4, 6 and 8. This compression of the sheet 40 is effected by placing the bolts 20 in positions beyond the ends and sides of the sealing means but adjacent thereto so that the bolts do not pass through the sealing means. The bolts, when tightened, cause the projections of material between the notches 42 and 46 to be compressed and to spread laterally into water tight engagement with the sealing strips 30 and channel portions 18 of the exterior battens. As a result, the sealing sheet effectively closes and prevents leakage at all points about the intersection of the batten strips.

In most instances it is preferable to employ a reinforcing plate 50 in combination with the sealing sheet 40 and for this purpose, a thin metal pressure plate may be used. Such a pressure plate may be located on either the interior or the exterior or on both faces of the sealing sheet. Generally, the pressure plate is located on the exterior of the sealing sheet so that it presents a metallic surface exposed to the exterior of the building through the spaces 24 and 26 between the ends of the batten strips. At the same time, the inner surface of the sealing sheet is in water tight contact with the sheets of wall forming material. The pressure plate 50 may be bonded to the sealing sheet by a suitable adhesive or otherwise to form a unitary element and is somewhat smaller than the sealing sheet 40 so that the edges of the pressure plate are spaced inward from the edges of the sealing sheet and the various projections thereon. The plate 50 will, therefore, be embedded or forced into the face of the sealing sheet as the assembly is compressed in securing the parts in place. The projecting marginal portions of the sealing sheet then contact the battens about the edges of the pressure plate assuring an effective water tight seal beween the inner surfaces of the battens and the sealing sheet. The pressure plate further aids in spreading the marginal portions of the sealing sheet laterally into sealing engagement with the strips 30 and channel portion 18 and prevents the sheet from buckling inward between the corners and edges of the wall forming material when the assembly is compressed.

In erecting an assembly of the character described, the lower sheets of wall forming material 2 and 4 and the lower vertical batten strip 10 are placed in position. The lower edge of the sealing sheet 40 is then slipped between the sheets 2 and 4 and the batten strip 10 and fitted about the sealing strip 30 and channel portion 18 at the upper end of the lower vertical batten strip. These elements may then be secured in place, if desired, by means of an inner batten strip 22 and bolts 20, although ordinarily, the elements are not fully tightened until the entire assembly is in position.

The horizontal batten strips 14 and 16 are then placed in position and the ends of the sealing strips and channel portions thereon are fitted closely in the notches of the side edges of the sealing sheet 40. The sheets of wall forming material 6 and 8 are then placed in position and the upper vertical batten strip 12 is arranged with its lower end overlying the upper portion of sealing sheet 40 with the sealing strips and channel portion fitting the notches in the upper edge of sheet 40. Thereafter, the inner batten strips 22 and bolts 20 are employed to secure all of the elements in place. As the bolts 20 are tightened, the sealing sheet 40 is compressed and spread laterally into sealing engagement with the sides of the sealing strips 30 and the channel portions of the batten strips as well as the flat faces of the sheets of wall forming material 2, 4, 6 and 8. At the same time, the sealing surfaces 36 of the sealing strips 30 are pressed against the outer faces of the sheets of wall forming material along the opposite edges of the batten strips.

The whole assembly is thus secured in place and compressed and rendered weather tight and water tight. Moreover, the operations required for assembling and tightening the elements can all be performed by workmen located on the interior of the building so that no scaffolding or other exterior working structure is required. Furthermore, there are no projecting elements on the exterior of the assembly, whereas the cracks or small spaces between the ends of the batten strips are scarcely visible. The architectural appeal of extended, unbroken appearing batten strips is, therefore, preserved.

In the alternative form of the invention illustrated in FIG. 5, the sealing means is provided with a sealing sheet 52 which is formed with notches or cut-out portions 54 designed to embrace and seal the assembly about the ends of the channel portions 18 of the battens. However, the cut-out portions 42 of the construction shown in FIG. 3 are omitted. The sealing sheet instead extends the full width of each batten.

With this construction the sealing strips 30 may extend to the ends of the intersecting battens as at 24 and 26 and overlie the edges of the sealing sheet 52 as indicated in dotted lines at 56 in FIG. 5. In this way, the marginal edges of the sealing sheet 52 are further compressed and a double seal is established about the edges of the sheet assuring a most effective sealing against the leakage of water or moisture through the assembly at the intersection of the battens.

In most applications of the construction of FIG. 5 a metal pressure plate 58 will be applied to one or both faces of the sealing sheet 52 so as to span the intersection and extend across the ends 24 and 26 of the batten strips. The pressure plate 58 when located on the exterior of the sealing sheet 52 will conceal the sealing sheet so that it will not be visible through the spaces between the ends 24 and 26 of the batten strips assuring a pleasing architectural appearance. On the other hand, the pressure plate located on the interior of the sealing sheet presses the sealing sheet forcibly against the surfaces of the batten strips and aids in spreading the sealing sheet laterally into sealing engagement with the ends of the channel

portions **18** and the sealing strips **30**. At the same time the marginal edges of the sealing sheet which project beyond the edges of the pressure plates press against the sheets of wall forming material **2**, **4**, **6** and **8** to complete the sealing action of the assembly.

In that embodiment of the invention shown in FIGS. 6, 7 and 8, the batten strips **60** are spaced apart at **62**, whereas the batten strips **64** are spaced from the sides of the batten strips **60** as shown at **66**. The batten strips as shown are of a flat type designed to be drilled to receive bolts **68** which cooperate with the nuts **70** to draw the batten strips together in securing the elements of the assembly in place. Each of the batten strips is provided with sealing strips **72** which are located adjacent the opposite edges of the battens and extend longitudinally thereof.

The sealing means employed is of the general rectangular or cruciform shape characteristic of the present invention and is formed with a sealing sheet **74** of soft, resilient and compressible material combined with a pressure plate **76**. The plate **76** is of smaller size than the sealing sheet so that the marginal portions **78** thereof are free to expand and afford a marginal seal about the edges of the pressure plate.

As shown in FIG. 8, the sealing means are located between the batten strips and the sheets of wall forming material **80**. The sealing means shown on the right hand side of the assembly of FIG. 8 has the pressure plate **76** located on the outside so as to be positioned adjacent the batten strips, whereas the sealing means shown on the left hand side of the assembly has the pressure plate positioned on the inside adjacent the sheets of wall forming material **80**. Thus, the sealing means may be arranged with either side outward as desired in any particular assembly.

In each form of the invention, the sealing strip carried by the batten cooperates with the sealing means to afford a complete and effective seal at the intersection of the battens. In the forms of the invention shown in FIGS. 5 to 8, the sealing strip on the batten overlies the exposed marginal portion of the sealing sheet and cooperates therewith to compress the edges effectively and afford a double seal and greater compression of the sealing sheet at the edges thereof where the need for a seal is of greatest importance.

While the construction shown in the drawings has four separate batten strips forming an intersection, the batten strips which are in end to end relation may, in fact, be a single batten strip extending across the intersection. In some instances, the adjacent ends of the batten strips at the intersection may be mitered to provide an architecturally pleasing appearance. Similarly at T-joints and in corner assemblies, the sealing sheet and pressure plate may be cut in half or otherwise modified to fit the elements and assure a water-tight construction. In any and all of these alternative arrangements, the sealing means should be suitably notched or otherwise formed to embrace or cooperate with the batten strips and sheets of wall forming material to provide a water tight sealing contact when compressed.

These and other modifications and changes may be made in the form, construction and arrangement of the elements without departing from the spirit of the invention. It should, therefore, be understood that the particular embodiment of the invention shown in the drawing is intended to be illustrative only and is not intended to limit the scope of the invention.

We claim:

1. An assembly embodying wall forming material held in position by intersecting batten strips located on the exterior of the wall forming material and having the end of one of said batten strips spaced from another batten strip a distance sufficient to allow for expansion and contraction of said batten strips, and by elements located on the interior of the wall forming material, means sealing the space between the wall forming material and the intersecting batten strips comprising a continuous sheet of compressible and laterally expandable sealing material located between the inner surface of said batten strips and the outer surface of the wall forming material and spanning the space at said intersection between the end of one of said batten strips and another batten strip, the batten strips having channel members extending longitudinally thereof near the center of each strip and the sheet of sealing material being formed with projections on the edges thereof embracing the ends of the channel members adjacent said intersection, and connecting means positioned beyond the edges of said sheet of sealing material and extending from the elements located on the interior of said wall forming material to the channel members of said batten strips, said connecting means urging the batten strips against said sheet of sealing material and serving to compress the same and cause it to expand laterally into sealing engagement with the channel members of said batten strips.

2. The combination as defined in claim 1 wherein the sheet of sealing material is provided with a metal reinforcing plate having the general shape of said sheet but having its edges spaced inwardly from the edges of said sheet.

3. An assembly comprising a plurality of sheets of wall forming material having right angularly shaped corners spaced apart to form an intersecting space between the edges of the sheets adjacent said corners, batten strips provided with fastener receiving means extending longitudinally thereof adjacent the centers of the strips and projecting inwardly therefrom, said batten strips being arranged in intersecting relation on the outer face of said sheets of wall forming material with the inwardly projecting fastener receiving means thereof located in the intersecting space between the edges of said sheets of wall forming material, the end of at least one of said batten strips being spaced from another batten strip a distance sufficient to allow for expansion and contraction of said batten strips, sealing means in the form of a flat sheet of compressible material located between the inner surface of said batten strips and the outer faces of the sheets of wall forming material and spanning the intersecting space between said sheets, said sealing means having projections on the edges thereof spaced apart and closely embracing the ends of the inwardly projecting fastener receiving means on the intersecting battens, said batten strips having sealing strips extending longitudinally thereof adjacent the edges thereof and abutting the projections on the edges of the sealing means, elements located adjacent the inner faces of said sheets of wall forming material, and fastening means engaging said elements and the fastener receiving means on the batten strips at points spaced from the edges of said sealing means, said fastening means urging the batten strips and the sealing strips thereon toward the sealing means and serving to press the sealing means against the outer faces of said sheets of wall forming material about the intersecting space therebetween.

4. An assembly embodying wall forming material held in position by elements located on the interior of said wall forming material and by intersecting batten strips located on the exterior of the wall forming material, the end of at least one of said batten strips being spaced from another batten strip at said intersection a distance sufficient to allow for expansion and contraction of said batten strips, means sealing the space between the wall forming material and the intersecting batten strips located on the exterior of the wall forming material and comprising a continuous sheet of compressible and laterally expandable material located between the batten strips and the wall forming material and spanning the intersection of the batten strips, said batten strips having sealing elements extending parallel to the edges thereof and the sheet of sealing material, when uncompressed, being thicker than the sealing elements and formed with notches in the edges thereof em-

bracing the inner sides and ends of the sealing elements adjacent said intersection, and connecting means extending between said elements located on the interior of the wall forming material to said batten strips and urging the batten strips against said sheet of sealing material and serving to compress the same and cause it to expand laterally so as to urge the edges of the sealing sheet into sealing engagement with the sealing elements.

5. An assembly comprising a plurality of sheets of wall forming material having right angularly shaped corners spaced apart to form an intersecting space between the edges of said sheets, means located on the interior of said sheets of wall forming material and engaging the inner surface of said sheets at opposite sides of the space between the adjacent edges of the sheets, batten strips located on the exterior of said sheets of wall forming material and provided with sealing strips extending lengthwise of the batten strips adjacent the edges of the batten strips and located on the inner surface thereof with portions projecting inward from said inner surfaces of the batten strips, said batten strips being arranged in intersecting relation to cover the intersecting space between the sheets of wall forming material, sealing means located between the batten strips and the sheets of wall forming material and spanning the intersecting space between the sheets of wall forming material and conforming generally in shape to the intersecting portions of the battens, said sealing means including a continuous compressible sealing sheet

and a pressure plate having its marginal edges spaced inwardly from the marginal edges of the sealing sheet, the sealing sheet, when uncompressed, being thicker than the portions of the sealing strips projecting inwardly from the inner surface of the batten strips but compressible to a thickness not exceeding the thickness of said inwardly projecting portions of the sealing strips, and connecting means extending from the means located on the interior of said sheets of wall forming material to the batten strips and extending through the space between the sheets of wall forming material at points spaced from the edges of the sealing means, said connecting means serving to draw the battens toward said sheets in a manner to compress the sealing strips on the battens against the marginal portions of the sealing means and urge said marginal portions into sealing engagement with both said sealing strips and said sheets of wall forming material.

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