April 6, 1937. R. V. PARSONS 2,075,955

WALL ASSEMBLY

Filed April 24, 1935

Fig. 1.

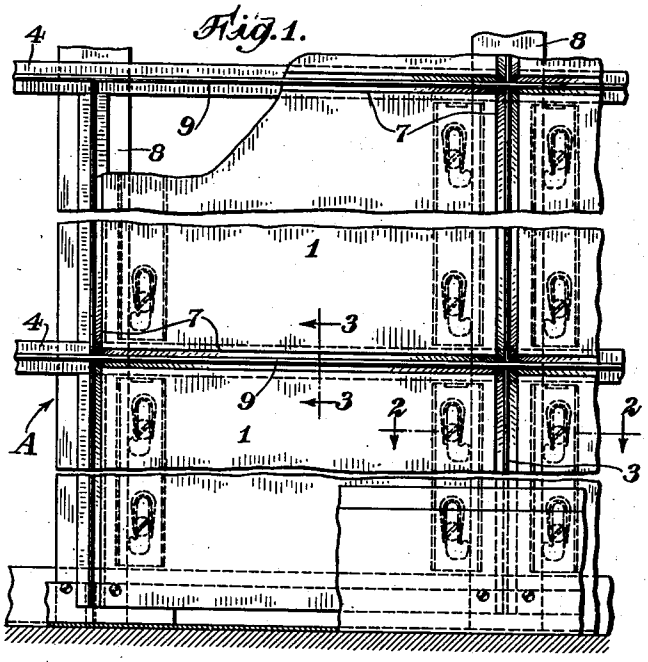


Fig. 3.

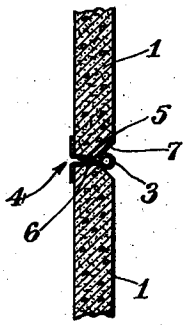


Fig. 5.

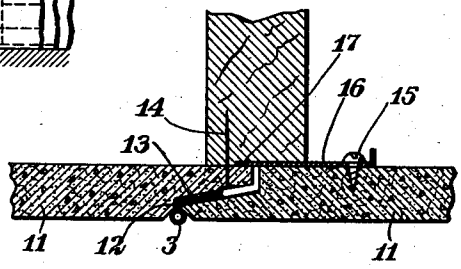


Fig. 2.

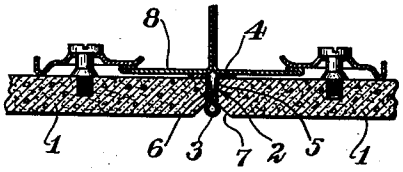


Fig. 4.

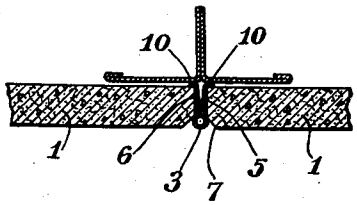


Fig. 6.

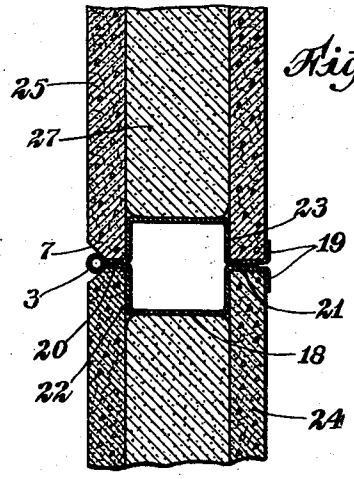
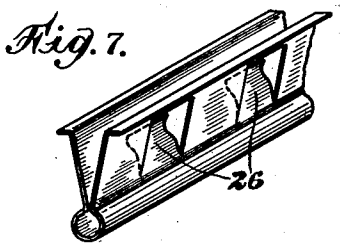


Fig. 7.



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WALL ASSEMBLY

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Application April 24, 1935, Serial No. 17,942

13 Claims. (Cl. 72—46)

This invention relates to a wall assembly and particularly to means for sealing the joint between the edges of adjacent panels constituting the facing material of the assembly.

This application is a continuation in part of my application for U. S. Patent filed January 29, 1932, Serial Number 589,723, for improvements in a Wall structure, Patent 2,010,412, issued August 6, 1935. Portions of the structure or methods of assembly not specifically described herein may be the same as described in the said previously filed application.

In assembled walls, including partitions, ceilings, or the like, there are used commonly supporting studs or beams and preformed panels of facing material secured thereto. There is need of means for preventing rattling at the joint portions of such walls, for minimizing the passage of air or sound through the joints, and for closing the joint, as against the passage therethrough of air or of water used to wash the wall. Since the material of which the panels are composed may be subject to expansion or contraction, with changing conditions of atmospheric temperature and/or humidity, there is need for joint sealing means that contact resiliently with the edges of the panels, that is, are expansible and adapted, therefore, to close the joint, even when the joint undergoes moderate increases or decreases in width.

It is an object of the present invention to provide joint sealing means meeting some or all of the above requirements. Other objects and advantages will appear from the detailed description that follows.

Stated briefly, one embodiment of the invention comprises a wall assembly of the type described including resilently expansible sealing means disposed in the joints between the panels of facing material and maintained therein under compression, whereby the sealing member is adapted to increase in width, with increasing width of the joint, and to maintain contact with the edges of adjacent panels between which the joint is defined. Another embodiment of the invention comprises also a sealing member and/or a wall assembly containing a sealing member having a portion wider than the joint to be closed by the member and extending continuously therealong, a portion wider than the joint engaged therebehind, and a web element extending through the joint, from front to back, and joining the said two portions into an integral unit. In another embodiment, the invention comprises a wall assembly including a longitudinally extending joint and a sealing member having the wide portions and web member, as described, extending in the said joint, the portion of the sealing member engaged behind the joint extending slightly above the wide portion engaged in front of the joint, whereby any water that may obtain access to the joint is prevented from flowing over the rearward portion of the sealing member.

An embodiment of the invention that is preferred at this time is illustrated in the attached drawing and the invention will be described in connection therewith.

Fig. 1 shows a front elevational view of a portion of a wall assembly constructed in accordance with the invention;

Fig. 2 shows a cross sectional view on line 2—2 of Fig. 1;

Fig. 3 shows a cross sectional view on line 3—3 of Fig. 1;

Fig. 4 shows a cross sectional view of an assembly corresponding to the central portion of an assembly similar to that shown in Fig. 2, but having a modified form of sealing member;

Fig. 5 shows a cross sectional view of the joint portion of a wall assembly including a ship-lap joint and a sealing member disposed therein;

Fig. 6 shows a cross sectional view of another modification of the joint portion of a wall assembly having a special type of joint sealing and spacing member engaged therein; and

Fig. 7 shows a perspective of a modified form of sealing member, on an enlarged scale.

In the several figures like reference characters denote like parts.

The supporting substructure, as described in detail in my said previously filed application, is here denoted in general by "A". It includes, suitably, a floor, upright studs, and accessories. Panels 1 of facing material, advantageously of a shaped, compressed and hardened composition of asbestos and Portland cement, are secured to the substructure, as by means described in the said application. These panels on each face lie substantially in a plane and define joints between the edges of adjacent panels. Disposed in these joints are the sealing members 2.

As illustrated in Fig. 2, for example, the sealing member contains a portion 3, suitably in the form of a springy bead, that is wider than the most narrow part of the joint, extends continuously and is engaged in front thereof, a rear portion 4 that is also wider than the joint and is engaged therebehind. The portion 4 consists suitably of continuous oppositely extending flanges contacting substantially over their entire width with

the backs of the adjacent panels. A web element extends continuously through the joint, from front to back, and unites the said wide portions 3 and 4 into an integral unit. Suitably the web element is composed of two legs 5 and 6 extending respectively, from opposite sides of the springy bead portion 3, which provides means for causing the legs to spread apart resiliently. As the panels 1 undergo change of dimensions, with changing atmospheric conditions, the legs 5 and 6 are forced closer together or allowed to spread farther apart, to vary the effective width of web of the sealing member and to provide resilient contact with adjacent edges of the said panels and to seal the joint, even though the joint may undergo moderate changes in width.

The panels may be bevelled at the outer edge portions, as illustrated at 7, and the forward wide portion 3 of the sealing member may be disposed between the bevelled edges of two adjacent panels, so that the outermost part of the portion 3 is substantially flush with the plane of the outer surfaces of the panels 1 or lies in a plane not farther removed from the substructure than the plane of the said surfaces. Such positioning of the sealing member gives a desirable architectural effect and minimizes the likelihood of injury to the forward portion of the sealing member.

At its rear portion the sealing member may lie directly in contact with the face 8 of a stud or support constituting part of the substructure and be held thereby in firm contact with the panels.

Or, as shown in Fig. 3, the sealing member may be engaged by the edges only of adjacent panels, as is the case at position 9 of Fig. 1. At this position the joint and the sealing member engaged therein extend horizontally. If water enters the joint above the forward portion 3 of the sealing member, the water does not overflow the rear portion, inasmuch as the rear portion, being wider than the forward portion, extends continuously slightly above the uppermost part of the forward portion and in this manner constitutes a seal against the entrance of water through the joint.

The bead joins the members 5 and 6 at an edge thereof.

In the modifications thus far described, the sealing member consists suitably of a substantially rail- or T-shaped, continuous strip of metal, with the wider base of the T placed behind and fitting snugly against two facing units, a web member extending through the joint, and a small bead at the exposed edge of the T, engaged in front of the said units, whereby accidental slippage of the T-shaped member out of position is prevented and the joint is continuously sealed. The sealing member tends to maintain adjacent units of facing material in alignment and reenforces the joints, as at position 9 where there is no stud. The metal strip is fireproof.

The assembly shown in Fig. 4 comprises a modified form of continuous sealing member, adapted to be inserted from a forward position after the panels have been secured in any suitable manner to the substructure. This sealing member has the wide forward portion 3, the legs 5 and 6 of the resilient web element, and a rear portion including outwardly extending elements of the type of the out-turned heels 10, adapted to become readily engaged or disengaged behind the rearward edges of the panels defining the joint, after the member has been inserted into the joint. This result is accomplished, as illustrated, by having the combined width of the heels measured transversely of the joint, slightly less than the width of the joint opening.

The assembly shown in section in Fig. 5 includes panels 11 meeting to form a ship-lap joint and a modified form of joint sealing member engaged therein. The sealing member includes a wide portion 3, such as previously described, engaged in front of the joint, a web element 12, also of type previously described, extending from the portion 3 into the joint to the position of a turn therein, and a rearward portion 13 integral with the said web element 12 and extending from the said turn farther into the joint, in a direction at an angle to the element 12, whereby the sealing member is secured in position. In making such an assembly, the panels 11 may be secured to a supporting structure in suitable manner. Thus, one of the panels may be secured, as by a nail 14, to a wooden stud and the other of the panels may be secured as by a screw 15 to a metal plate 16. The latter panel is then brought near to the edge of the first panel, to leave a wide joint therebetween. The sealing member is placed in the joint, and the joint closed by moving the panel carrying the plate 16 until the plate is engaged behind the other of the said panels, as illustrated at position 17, and the sealing member is held tightly in position.

In the assembly shown in Fig. 6, the portion of the sealing member engaged behind the joint is integral with a reenforcing element 18 of the type of a metal section having portions extending in at least two planes. Thus, the element 18 may consist of a hollow tube. Also the sealing member may be adapted to engage spaced panels constituting the two faces of the wall. Each such sealing member may have wide portions 3 and 19 engaged outside the joints of the two faces, web elements 20 and 21 extending through the joints, and wide portions 22 and 23 integral each with the reenforcing element 18 and, therefore, with each other engaged behind the joints, on each side of the said wall. Furthermore, the combined rear portions and reenforcing element, such as the hollow tube illustrated, may be sufficiently wide to contact with the insides of the panels 24 and 25 constituting the facing members of the wall. In such a structure, the sealing member serves also to space the two sides of the wall at the edges of the panels and to maintain constant relationship therebetween, as well as to provide substantial rigidity to the structure.

Normally, the sealing members shown in Figs. 1–5 are under compression tending to force the resilient legs towards each other, so that they may spread apart, to close the joint, as the width thereof increases moderately. Means other than or supplementing the resiliency of the bead and leg portions may be used to cause this tendency to spreading apart, as, for example, spring members compressed between the legs, such as the tongues 26 stuck out from one leg and contacting resiliently with the other leg of a sealing member.

If desired, the panels 24 and 25 on the two sides of the wall may be united to a core filling material 27, to constitute, in effect, unitary panels, each of substantial thickness, extending from one face of the wall to the other face and provided with grooved edges in which the rear portions of the sealing member and the reenforcing element are engaged, as described, the combined rear portions and reenforcing element being substantially of the same width as that of the engaging groove,

whereby these portions of the sealing member are caused to contact with the side walls of the groove.

In making the assembly shown in Fig. 6, the sealing member is arranged at the edge portion of a grooved panel or of panels in the two series thereof constituting the two faces of the wall; the other panel is then brought up, in edgewise manner, to engage the sealing member and hold it, as illustrated.

It is understood that any suitable type of supporting substructure may be used and that such substructure does not constitute a part of the present invention.

The above description and specific examples are to be taken as illustrative only. Any variation or departure therefrom which conforms to the spirit of the invention is intended to be included within the scope of the claims.

What I claim is:

1. A wall assembly comprising in combination a supporting substructure, panels of facing material supported thereon and forming a joint between the edges of adjacent panels, a fireproof joint sealing member including a portion wider than the joint and engaged therebehind, a portion wider than the joint and engaged in front thereof, and a web element including two resiliently deformable legs, extending through the joint from front to back, and joining the said portions into an integral unit, the said joint sealing member comprising means for spreading the two legs apart by spring action into resilient contact with the edges of the panels constituting the sides of the joint, to maintain contact between the said legs and the said edges as the width of the joint varies moderately.

2. A wall assembly comprising in combination a supporting substructure, panels of facing material supported thereon and forming a joint between the edges of adjacent panels, a joint sealing member including a portion wider than the joint and engaged therebehind, a portion wider than the joint and engaged in front thereof, and a web element extending through the joint from front to back and joining the said portions into an integral unit, the said portion engaged behind the joint including a reinforcing element of the type of a formed metal section extending in at least two planes.

3. A wall assembly comprising in combination a supporting substructure, panels of facing material supported thereon, forming a joint between the edges of adjacent panels, and provided with a groove in each of the said edges, with the open face of each groove turned towards the said joint, and a joint sealing member including a wide portion engaged in front of the joint, a wide portion engaged in the said grooves, and a web element extending through the joint from face to back and joining the said portions into an integral unit.

4. A wall assembly comprising in combination a supporting substructure, panels of facing material supported thereon, forming a joint between the edges of adjacent panels, and provided with a groove in each of the said edges, with the open face of each groove turned towards the said joint, and a joint sealing member including a wide portion engaged in front of the joint, a wide portion engaged in the said grooves, and a web element extending through the joint from face to back and joining the said portions into an integral unit, the said portion engaged in the groove including a reenforcing element of the type of a formed metal section extending in at least two planes and being of overall width approximately the same as the groove.

5. A wall assembly including in combination a supporting substructure, panels of facing material supported thereon and forming between the edges of adjacent panels a joint having a turn therein and being of the type of a ship-lap, and a joint sealing member including a portion wider than the joint engaged in front thereof, a web element secured to the said portion and extending into the joint approximately to the turn therein, and another portion united to the rearward edge of the web element, extending rearwardly therefrom, and being engaged in the joint beyond the said turn.

6. A wall assembly including in combination a supporting substructure, panels of facing material supported thereon, provided with bevelled outer edge portions, and forming a joint between the bevelled edges of adjacent panels, and a joint sealing member including a portion wider than the joint at the most narrow portion thereof disposed between the said bevelled edges and, at the outermost part of the said portion, lying substantially flush with the outer surfaces of the panels, another portion wider than the joint and engaged therebehind, and a web element extending through the said joint from front to back and connecting the said two portions into an integral unit.

7. A wall assembly including in combination a supporting substructure, panels of facing material supported thereon, provided with bevelled outer edge portions, and forming a joint between the bevelled edges of adjacent panels, and a joint sealing member including a portion wider than the joint at the most narrow portion thereof disposed between the said bevelled edges and, at the outermost part of the said portion, lying in a plane not farther removed from the substructure than the plane of the outer surfaces of the panels, another portion wider than the joint and engaged therebehind, and a web element extending through the said joint from front to back and connecting the said two portions into an integral unit.

8. A wall assembly, adapted to prevent the flowing of water through horizontal joints in the wall, comprising in combination a supporting substructure, panels of facing material supported thereon and forming a horizontal extending joint between the edges of adjacent panels, a sealing member engaged within the joint, a portion of the said member wider than the joint and engaged in front thereof, another portion wider than the joint and extending continuously therebehind, and a web element extending continuously through the joint, from front to back, and joining the said portions into an integral unit, the said portion engaged behind the joint extending continuously above the said portion engaged in front of the joint, whereby flowing of water through the joint from front to back is prevented.

9. A wall assembly comprising in combination a supporting substructure, two series of panels of facing material spaced from each other, constituting the two faces of a wall supported on the said substructure and forming joints between the edges of adjacent panels in both of the said faces, and joint sealing and spacing members engaged in the said joints, the said members including each portions wider than the

joint and engaged outside thereof, web elements integral with the said wide portions and extending inwardly through the joints from face to back of each, and rear portions integral with the said web elements, wider than the joints, and engaged therebehind, the rear portion engaged behind the joint on one face of the wall being integral with the rear portion engaged behind the joint in the opposite face of the wall, whereby the said joint sealing member serves to space the panels of the two faces of the wall from each other.

10. A wall assembly comprising in combination a supporting substructure, two series of panels of facing material spaced from each other, constituting the two faces of a wall supported on the said substructure and forming joints between the edges of adjacent panels in both of the faces, and joint sealing and spacing members engaged in the said joints, the said members including portions wider than the joints engaged outside thereof, web elements integral with the said wide portions and extending through the joints from face to back, and rear portions integral with the web elements including a reenforcing member of the type of a formed metal section extending in at least two planes and contacting with the two inside faces of the wall at the joint portion thereof.

11. A fireproof sealing member, adapted to close the joint between adjacent units of facing material in an assembled wall, comprising a portion wider than the joint and adapted to be engaged in front thereof, a portion wider than the joint and adapted to be engaged therebehind, a web element comprising two resiliently deformable legs adapted to extend through the joint and uniting the said portions into an integral article, and means for spreading apart resiliently the said two legs, whereby the said means are adapted to maintain contact of the said legs with edges of the said facing units, as the joint therebetween varies moderately in width.

12. A wall assembly of the type described comprising in combination a supporting substructure, panels of facing material supported thereon and defining joints between the edges of adjacent panels, a sealing member closing the said joint and including a springy portion engaged in front of the said joint, two legs extending from different parts of the said springy portion, extending through the joint and adapted to be spread apart by the said springy portion, and outwardly extending elements constituting heels on the rear portions of the said legs, the combined width of the heels being slightly less, measured transversely of the joint, than the width of the joint, so that the heels may be passed through the joint and be engaged or disengaged readily behind the edge of the panels.

13. A sealing member, adapted to close the joint between adjacent units of facing material in an assembled wall, comprising a portion wider than the joint and adapted to be engaged in front thereof, a portion wider than the joint and adapted to be engaged therebehind, a web element comprising two legs adapted to extend through the joint and uniting the said portions into an integral article, and means including a spring member between the said legs for spreading apart resiliently the said two legs, whereby the said means are adapted to maintain contact of the said legs with edges of the said facing units, as the joint therebetween varies moderately in width.

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