Sept. 8, 1970 K. J. BRZEZINSKI 3,527,010

BUILDING WALL CONSTRUCTION

Filed May 20, 1968

FIG. 1

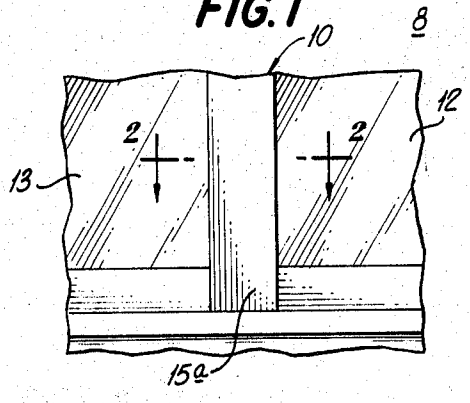


FIG. 2

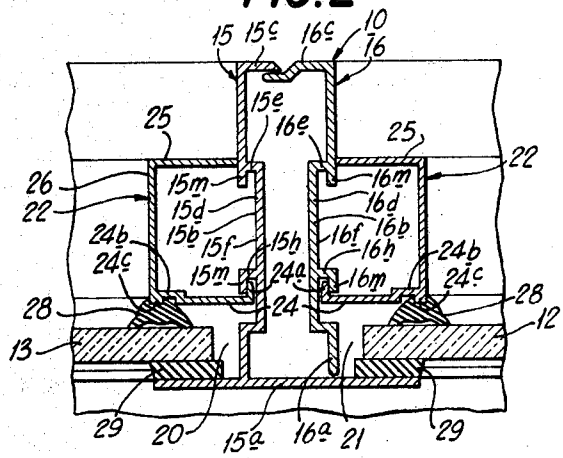
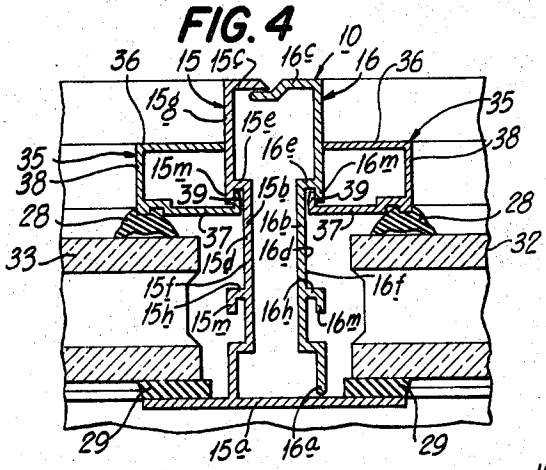


FIG. 4



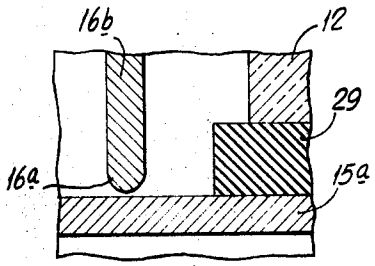


FIG. 3

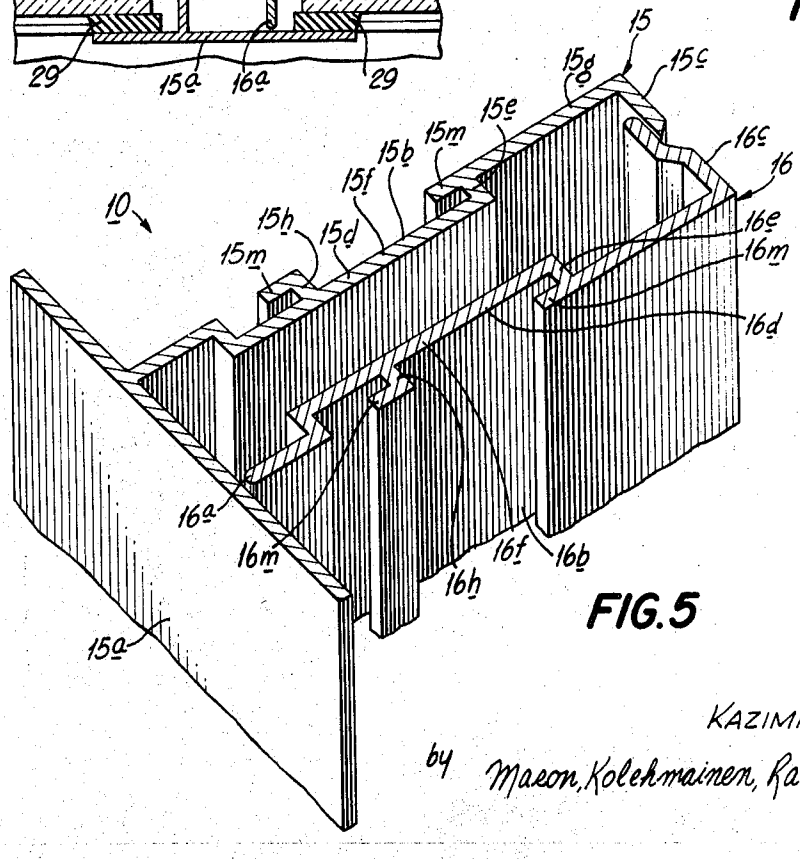


FIG. 5

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United States Patent Office

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BUILDING WALL CONSTRUCTION

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Int. Cl. E06b 3/62
U.S. Cl. 52—397 3 Claims

ABSTRACT OF THE DISCLOSURE

There is provided an improved building wall construction including a thermal expansion type split mullion. The mullion includes a continuous face member against which opposed panels are glazed with glazing tape as the seam end weathering. This eliminates the seam between the mullion halves from the exterior face of the mullion assembly altogether, protecting the seam from the weather, and reducing the vulnerable sealing lines exposed to the weather.

The present invention relates to building wall construction, particularly to a new and improved building wall mullion of the type commonly referred to as a coupling or thermal expansion mullion. Split mullions for accommodating thermal expansion of adjacent panels are in common commercial use. One such mullion, for example, is disclosed in Letters Patent of the United States, No. 3,037,591, granted to L. L. Pulling et al. The primary function of such a split or thermal expansion mullion is to accommodate thermally induced movement between immediately adjacent panel units.

Heretofore it has been the common practice on split or expansion mullions to expose the seam joint between the mullion halves to the wind and other elements. Because of repeated movement between the mullion halves, brought about by both temperature changes and wind pressure, even the best of weather seals fails to function satisfactorily when applied at the seam. Any failure of the seal will result in water infiltration into the mullion cavity and consequent window leakage.

Accordingly one object of the present invention is to provide a new and improved expansion mullion.

Another object of the present invention is to provide a new and improved wall construction employing an improved expansion mullion.

Still another object of the present invention is the provision of a new and improved expansion mullion which does not expose the seam joint to the weather.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

In accordance with these and many other objects of the present invention, there is provided a new and improved wall construction having an improved split or thermal expansion mullion which does not expose the seam joints thereof between the mullion halves to the weather. The mullion includes a first element having a transverse face defining a panel receiving channel in one

side. A second member interfits with the first in relative movable relation therewith and defines, with the transverse face of the first member, a second opposed panel receiving channel. Sealing tape is placed directly between the transverse face and the respective panel edges, and resilient means are interposed between the other side of the panel edges and the inside of the panel receiving channel.

Advantageously the improved expansion mullion eliminates the mullion seam from the exterior face of the mullion assembly altogether, and thereby reduces the number of vulnerable weathering seams from the conventional three to two in the present mullion. In addition, in the improved mullion, the sealing tape is placed directly between the face and the panel, and is subjected to but a fraction of the thermally induced movement normally encountered in the conventional coupling mullion assembly. The relative movement between the mullion halves is limited to the interior pane of the window and does not put any strain on the exterior weather seal. In addition the improved mullion design provides uniformity of the exterior appearance between all window mullions as there is no visible seam in the coupling or expansion mullion. There is only one homogeneous band of metal exposed in all of the mullions. The improved mullion construction provides for ease of installation as there is no seal present at the time of erection to render engagement of the mullion halves difficult due to friction or tension brought about by the presence of gaskets or other sealings. Moreover there is an ease of inspection as the seam is in fact placed in open view and can be readily inspected at any time during the installation. Moreover since the seams are exposed, the seams may be readily repaired and any flaws corrected.

For a better understanding of the present invention reference may be had to the accompanying drawings wherein:

FIG. 1 is a fragmentary view of a wall construction employing the improved expansion mullion;

FIG. 2 is a cross sectional view of the wall construction of FIG. 1, drawn to a larger scale, taken along line 2—2 of FIG. 1;

FIG. 3 is a detail view of the mullion construction of FIG. 2, illustrating the point of movement between the mullion halves;

FIG. 4 is a cross sectional view of a wall construction, similar to that illustrated in FIG. 1, but disclosing a double or thick panel arrangement; and

FIG. 5 is a cross sectional perspective view of the improved expansion mullion.

Referring now to the drawings, there is illustrated a wall construction generally illustrated at **8**, including a mullion assembly **10** which supports opposed panels **12** and **13** which, in the illustrated embodiment, may be glass or window panels. As best illustrated in FIG. 5, the mullion assembly **10** is formed of a first construction element **15** of generally T-shape including a crossbar **15***a* to define a transverse face, and a leg **15***b* extending longitudinally thereof having one end secured intermediate the edges of the crossbar **15***a*. The other end of the leg **15***b* is provided with a flange **15***c* for interfitting association with another construction element. Intermediate the length of the leg **15***c* is defined a shallow channel-shaped depression

15*d* including a leg portion 15*e* and a bottom portion 15*f*. A jamb surface 15*g* extends from the top of the leg portion 15*e* outwardly toward the flange 15*c*. Moreover there is provided at least one intermediate leg portion 15*h* extending upwardly from the bottom of the depression 15*d* intermediate the bottom portion. Both of the leg portions 15*e* and 15*h* have toes 15*m* forming lips extending toward the crossbar 15*a*.

The other half of the mullion assembly 10 is formed of a construction element 16 of generally L-shape having one end 16*a* of a long leg 16*b* spaced apart from the inner surface of the crossbar 15*a*, and having a short leg 16*c* defining a flange interfitting with the flange 15*c* of the construction element 15 to provide for relative transverse movement of the construction elements 15 and 16. In addition the long leg 16*b* is provided with means for retaining the glass similar to that of construction element 15, and specifically includes a depression 16*d* formed intermediate its length and defined by a leg portion 16*e* and a bottom portion 16*f*. A jamb surface 16*g* extends from the leg portion 16*e* to the flange 16*c*. An intermediate leg portion 16*h* extends intermediate the bottom of the depression 16*b*. Each of the leg portions 16*e* and 16*h* have toe portions 16*m* extending upwardly toward the crossbar 15*a* of the construction element 15.

For defining opposed panel receiving channels 20 and 21, there is provided a first panel or glass stop 22 cooperative with the leg 15*b* of the construction element 15 to define the channel 20 with the crossbar 15*a*. A second glass stop 22 is cooperatively associated with the construction element 16 so as to define with the crossbar 15*a* the panel receiving channel 21. The glass stops 22 may be similar to those described and claimed in Letters Patent of the United States, No. 2,983,969, granted May 16, 1961, to D. C. Muessel. Briefly such glass stops are of general channel-shape in cross section including side flanges 24 and 25, interconnected by a bight or bottom flange 26. The flange 24 has a reverse bend or toe 24*a* at its end facing toward the side flange 25, and hooked over one of the toes 15*m*, 16*m*, of the respective construction elements 15, 16. In addition, there is provided a weatherstrip channel 24*b* along the other end of the side flange 24, in the outer side surface thereof, defining a projecting portion 24*c* for retaining suitable resilient gasket means 28. A glazing tape 29 is provided between the outer edge of the panels 12 and 13, and the inner surface of the crossbar 15*a* serving both as a panel spacer and as exterior glazing seal; and further serving as the outside protection for the internal metal to metal seam between the construction elements 15 and 16 as best illustrated in FIG. 3

From the above detailed description, it will be seen that the thermal expansion of the window elements such as horizontal members which results in the movement of the construction elements 15 and 16 toward and away from each other will result in specific movement between the end 16*a* of the construction element 16 along the inner surface of the crossbar 15*a* of the construction element 15, FIG. 3. Moreover such thermal expansion of the horizontal members will further result in movement between the resilient gasket 28 and the inner surface of the panel 12, rather than imposing any stress or strain to the glazing tape 29.

FIG. 4 illustrates an embodiment of the invention employing double or thick paneling. Corresponding parts of FIG. 4, and of the embodiment of FIGS. 1 through 3, are identified by the same reference numerals. Specifically there is provided the same mullion assembly 10 which is readily adapted to accommodate thick panels 32 and 33 by the use of suitable panel stops 35, similar to the panel stops 22, including side flanges 36 and 37 and a bottom flange 38. An inwardly extending toe 39 is hooked over the corresponding toes 15*m*, 16*m* of the legs 15*e*, 16*e* in the respective construction elements 15 and 16 thus accommodating the thicker panels 32 and 33.

It will be understood that the mode of expansion of the mullion assembly 10 of FIG. 4 is identical to that heretofore described in connection with the embodiment of FIGS. 1, 2 and 3.

Although the present invention has been described by reference to various embodiments thereof, it will be apparent that numerous other modifications and embodiments will be devised by those skilled in the art which will fall within the true spirit and scope of the present invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A wall construction comprising

a longitudinally split expansion mullion formed of:

a first construction element of generally T-shape having a crossbar with end portions and a leg extending longitudinally thereof having an end secured intermediate the edges of the crossbar, retaining means on one side of said leg for receiving a panel stop, and flange means along the other longitudinal end of said leg extending to the side of said leg remote from said retaining means;

a second construction element of generally L-shape having a long leg spaced apart from the leg of said first mentioned element on the side thereof toward said flange means and terminating along the inner face of said crossbar intermediate said end portions to provide relative motion therewith, retaining means of the side remote from said first construction element for receiving a panel stop, and flange means overlapping and interfitting with the first mentioned flange means to provide relative motion of said construction elements;

a pair of panel stops, one operatively positioned in each of said retaining means to define with said crossbar a pair of opposed panel receiving channels;

a pair of panels having their adjacent edges received in respective ones of said channels;

sealing strip means interposed between the edges of said panels and said crossbar; and

resilient means interposed between said panel stops and the edges of said panels whereby said second construction element will move with its associated panel edge relative to the first construction element.

2. A wall construction comprising:

a longitudinally split expansion mullion formed of:

a first construction element having a crossbar with end portions and an inwardly extending leg, one edge of the leg being secured longitudinally to and intermediate the crossbar,

a second construction element having longitudinal parts interfitting in overlapping movable position relative to said first element and terminating along the inner face of said crossbar intermediate said end portions to provide relative motion therewith, and

panel stop means associated with each of said elements inwardly of said crossbar defining with said crossbar a pair of opposed panel receiving channels;

a pair of panels having their adjacent edges received in respective ones of said channels;

sealing strip means interposed between the edges of said panels and said crossbar; and

resilient means interposed between said panel stops and the edges of said panels whereby said second construction element will move with its associated panel edge relative to the first construction element.

3. A wall construction comprising:

a split mullion including a first member having a transverse face with end portions and glazing means defining a panel receiving channel with said face, and a second member interfitting with said first member

terminating along the inner surface of said transverse face intermediate the ends thereof and having glazing means defining a panel receiving channel with said face opposed to the first mentioned panel receiving channel;

a pair of panels having their adjacent edges received in respective ones of said channels;

sealing strip means interposed between the edges of said panels and the inner surface of said transverse face; and

resilient means interposed between said glazing means and the edges of said panels whereby said second construction element will move with its associated glazing means relative to the first construction element.

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JOHN E. MURTAGH, Primary Examiner

U.S. Cl. X.R.

52—501, 513, 732

REEXAMINATION CERTIFICATE (201st)

United States Patent [19] [11] **B1 3,527,010**

Brzezinski [45] Certificate Issued **Jun. 5, 1984**

[54] **BUILDING WALL CONSTRUCTION**

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[73] Assignee: **Kawneer Company Inc.,** Niles, Mich.

Reexamination Request:
No. 90/000,145, Jan. 26, 1982

Reexamination Certificate for:

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Issued:	**Sep. 8, 1970**
Appl. No.:	**730,530**
Filed:	**May 20, 1968**

[51] **Int. Cl.**[3] **E06B 3/62;** E04B 2/88

[52] **U.S. Cl.** **52/397;** 52/501; 52/513; 52/732

[58] **Field of Search** 52/235, 731, 732, 501, 52/513

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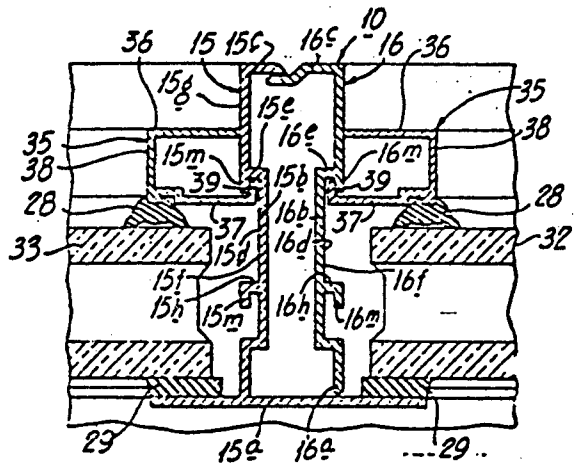
Primary Examiner—John E. Murtagh

[57] **ABSTRACT**

There is provided an improved building wall construction including a thermal expansion type split mullion. The mullion includes a continuous face member against which opposed panels are glazed with glazing tape as the seam end weathering. This eliminates the seam between the mullion halves from the exterior face of the mullion assembly altogether, protecting the seam from the weather, and reducing the vulnerable sealing lines exposed to the weather.



REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307.

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1–3, having been finally determined to be unpatentable, are cancelled.

* * * * *