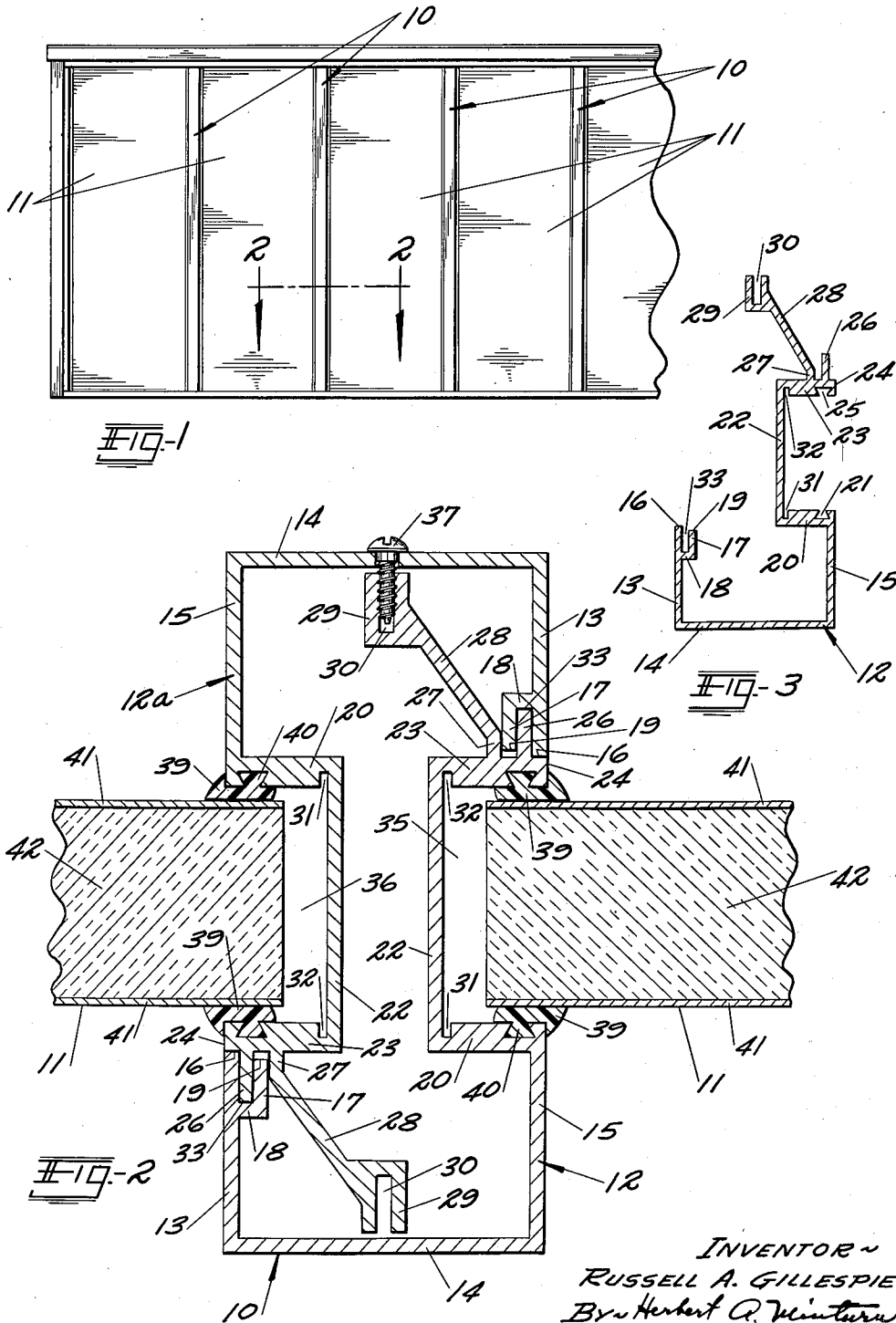


March 28, 1961

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CURTAIN WALL MULLION

2,976,969

Filed May 5, 1958



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CURTAIN WALL MULLION

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Filed May 5, 1958, Ser. No. 733,057

3 Claims. (Cl. 189—34)

This invention relates to a building face wall construction popularly known as a curtain wall wherein there are vertical mullions and between which extend panels of varying types such as an insulated panel faced by metal particularly on the outsides, or glass panels, or panels containing in part glass windows or other openings normally closed.

This invention relates particularly to the mullion itself. A primary advantage of the invention is to provide a mullion which may be made primarily out of but two parts each identical with the other and which will permit a bellows action which is necessary to provide for the expansion and contraction induced by changes in internal room temperatures as well as atmospheric temperatures.

A further advantage resides in the fact that the two members making up the mullion may be readily assembled on the job without any complications simply by sliding one member laterally into portions of another member to complete the mullion.

Other objects and advantages of the invention are found in the low cost of manufacture and assembly, the two parts of the mullion lending themselves to the extrusion method of forming them, and in appearance and overall security of remaining in position and maintaining the intervening panels in proper alignment and mounting.

These and many other objects and advantages of the invention will become apparent in the following description of one particular form, in which:

Fig. 1 is a fragmentary portion of a curtain wall in elevation;

Fig. 2 is a greatly enlarged view in detail in section on the line 2—2 in Fig. 1; and

Fig. 3 is a transverse section through one of the elements of the mullion.

While the usual application of the mullion will be to a multi-storied building for the sake of simplicity in describing the invention, the curtain wall assembled as in Fig. 1 is shown only in a one story height. A number of mullions each generally designated by the numeral 10 are assembled in vertical positions regularly spaced apart to accommodate the panel 11 to be carried therebetween.

The mullion 10 is made up out of two structural members, one of which is shown in cross-section in Fig. 3.

Referring to Fig. 3, the mullion element designated for convenience in description by the numeral 12 is identical to its companion element which is designated by the numeral 12a. The element 12 has a channel portion composed of a leg 13 integrally connected through a face web 14 with a leg 15. The legs 13 and 15 are preferably joined to the web 14 approximately at right angles, although a radius can be provided if so desired, that is a radius at the corners. The leg 13 terminates by a free end 16. Spaced from that end 16 along the leg 13 is a hook member 17 spaced from the leg in parallel relation by a short arm 18. The hook 17 has a free end 19 terminating short of the end 16.

The leg 15 carries an intumed length 20 parallel to the web 14. The thickness of this member 20 is greater than

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is the thickness of the leg 15 in order to provide for a groove 21 therealong, this groove being undercut as is indicated in Fig. 3 in section.

This member 20 has a length less than half the distance between the legs 13 and 15, and is turned at right angles from the leg 15.

From the inner end, that is the end removed from the leg 15, there is a spacer length 22 of metal extending integrally from that end of the member 20 and at right angles thereto, to in turn carry an arm 23 extending at right angles from its end removed from the member 20 and in substantial parallelism with the member 20, terminating with an end 24 substantially in the plane of the leg 15.

This arm 23 carries a groove 25 therealong opening from the side opposing the member 20, and having an undercut form in cross-section as indicated in Fig. 3. Immediately above the groove 25, on the opposite side of the arm 23 is a tongue 26 extending therefrom.

Spaced along the arm 23 from the tongue 26 toward the straight length 22, is a short leg 27 less than is the outward extension of the tongue 26. A diagonal arm 28 is fixed to the member 27 and extends diagonally therefrom away from the tongue 26 to terminate in a U-shaped channel 29 opening from the side removed from the arm 23, providing a groove 30. At the opposite end portions of the spacer member 22, there are entering grooves 31 and 32 cutting into the members 20 and 23 to permit ready expansion and contraction as between the three members, and also to reduce the amount of metal employed.

Going to Fig. 2, an identical member 12a is brought up to the member 12, and the tongue 26 of the member 12 is entered in the groove 33 between the leg 13 and the hook 17 of the member 12a and likewise the hook 26 of the member 12a is entered into the groove 33 of the member 12 and then the two members 12 and 12a are moved together to seat the respective tongues 26 in their receiving grooves. This assembly then gives an overall rectangular section as indicated in Fig. 2, with two re-entering cavities 35 and 36 substantially centrally disposed on each side of the mullion. The diagonal member 28 in each instance presents the groove 30 adjacent the web 14. In order to secure the two sections of the mullion 10 one to the other, and maintain the inter-engagement of the tongues and grooves, a screw member 37 may be entered at intervals along the web 14 and self-threadedly engaged in the groove 30. The screw 37 would preferably be entered from the inside of the wall, although these screw elements 37 may be used from both sides if desired. It is to be understood of course that the two sections of the mullion 10 have been described in reference to their cross-sectional formation, and that this cross-sectional formation prevails throughout the entire lengths of the members 12 and 12a forming the mullion 10.

With the mullion 10 formed as above indicated, the edges of panels 11 are entered into the cavities 35 and 36, to be sealably engaged from opposite faces by means of a flexible, yielding weather strip 39 on each side, this strip 39 in each instance having a rib 40 with a wedge shape cross-section to enter into the respective grooves 21 and 25 for retention. The strip 39 in each instance bears compressibly against the face of the panel 11, air and water sealing the edge portion of the panel within the cavity 35 or 36 as the case may be. Also these strips 39 permit the expansion and contraction of the panels 11 as well as of the mullion 10, but if the gripping of the panel 11 between the two strips 39 be such that there is no sliding action, then the mullion 10 will expand and contract with like movement or change in dimensions of the panels 11, the two members 22 of the mullion parts

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12 and 12a advancing and retreating one from the other under the imposed conditions.

In the form herein shown, the panel 11 consists of an inner and outer covering of metal 41 with an intervening layer of insulation 42. Where glass is employed as the panel, then the glass would be received in like manner, although a glass retaining frame would be carried along the edges of the panel to enter within the cavities 35 and 36 and be insulated by the strips 39. The exact form of the holder does not enter into the invention per se, and therefore is not herein shown nor described.

Since the two sections 12 and 12a are preferably made by the extrusion process, they will be identically alike, and thus the dimensions may be maintained within very close tolerances so that the tongues 26 will fit within their receiving grooves with a close sliding fit and thus prevent any appreciable lateral travel between the tongues and the side walls of the grooves.

Therefore while I have herein shown and described my invention in the one particular form, in more or less minute detail, it is obvious that structural changes may be employed without departing from the spirit of the invention, and I therefore do not desire to be limited to that precise form beyond the limitations which may be imposed by the following claims.

I claim:

1. A curtain wall mullion between two adjacent panels comprising two identically shaped front and back members, each one reversed in respect to the other, each having an outer face web; a leg extending rearwardly from each of opposite edge portions of said face web; one of said legs terminating with a groove therealong opening therefrom oppositely from said face web; the second of said legs having an inturned length turned

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therefrom over and spaced from said face web; a spacer length extending from an inner end portion of said inturned length; a first arm outturned from said spacer length spaced from said inturned length completing a cavity entering from a side of said mullion, closed from three sides and open from said mullion side; a tongue extending rearwardly from an outer end portion of said arm; a leg extending from said first arm along, inside of and spaced from said tongue; a second arm extending inwardly and rearwardly from said first arm; said two members being interfitted with the tongue of the front member inserted within said one leg groove of the other member and with said second arm ends oppositely directed respectively toward the face webs; and means carried by at least one of said members interengaging said second arm; the assembled mullion presenting a closed box with a reentering cavity along opposite sides receiving therein ends of said panels.

2. The structure of claim 1 in which said second arm is diagonally disposed to terminate by a free end approximately in a longitudinal center line of a face web.

3. The structure of claim 2 in which said means comprises a longitudinal groove along said second arm free end, and screws through said face web screw-threadedly entering said second arm groove.

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