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71 Applicant: **DON REYNOLDS INTERNATIONAL LIMITED**
P O Box 16 Canal Road
Bradford BD2 1QS(GB)

72 Inventor: **Reynolds, Don Arthur**
Gypsy Mead Lodge Hill
Baildon Bradford(GB)

74 Representative: **Wharton, Peter Robert et al**
P. R. Wharton & Co. Alliance House 29-31
Kirkgate
Bradford West Yorkshire, BD1 1QB(GB)

54 **Building system.**

57 A curtain wall system for the cladding of a building which comprises framework members for receiving and seating infill panels, and gaskets adapted to be received within the framework members to extend over and retain the infills, characterised in that, for a given infill, one or more clips are provided which locate in respective channels in orthogonally disposed adjacent framework members and retain the corner of the infill. The clips give added mechanical retention for exceptional loading but do not detract from the flexibility of the system.

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BUILDING SYSTEM

This invention relates to a curtain wall system for the cladding of buildings using gaskets and in particular relates to the provision of additional retention for such systems when required because of extreme windloads or local regulations.

In our US patent No. 4631884 there is described a novel wall system which comprises an auxiliary framework attached to the main steel work of a building and made of a plurality of framework members. Each such framework member has as generally T shaped cross section and includes an elongated central support portion defining a pair of opposed shoulders for seating the edges of a pair of adjacent infill panels. The framework member has a channel generally parallel with the support portion and shaped to receive and grip the foot of a flexible gasket, the gasket having a transverse limb adapted to extend toward or over the associated shoulder to bear against and retain the infill. The thickness of any given infill may be substantially the same as the cross sectional length of the support portion of the associated framework member. The term 'curtain wall' as used herein is intended to cover systems of this type as well as conventional curtain wall systems.

One advantage of the system above described is the flexibility accorded the system to enable subsequent alterations and/or extensions to be accommodated. Thus the removal of one gasket allows its associated infill to be removed and replaced with, for example, an infill bearing an opening window, without disturbing adjacent infills or retention devices. (The term infill includes a construction panel, glazing unit, or the like which is capable of being used as cladding for a building, that is to constitute the internal and external walling for a building).

While the gasket provides adequate retention of the infill for all normal uses, in certain instances, for example in places of exceptionally high wind loading, or where local regulations require it, it may be necessary to provide in addition to the gasket an independent means of retaining the infill within the framework. Such a means is disclosed in our UK patent No. 2093497. There, rods or plates are inserted through corresponding holes in the side walls of the framework portion so as to overlie edge portions of the adjacent infill. However this latter method has not proved completely satisfactory in practice, especially since the plate or rod will generally overlie infills on either side of the given framework section and thus to some extent reduce the flexibility of the system.

The invention seeks to provide a form of retention for use with gasket-type curtain wall systems

improved in the above respects.

According to the present invention there is provided a curtain wall system for the cladding of a building which comprises framework members for receiving and seating infill panels, and gaskets adapted to be received within the framework members to extend over and retain the infills, characterised in that, for a given infill, one or more clips are provided which locate in respective channels in orthogonally disposed adjacent framework members and retain the corner of the infill.

The clips may be made of a suitable material such as sheet metal, for example sheet steel, and are conveniently generally 'U'-shaped in appearance. The U-shaped 'legs' of the clip are preferably skewed at an angle of approximately 45 degrees outwardly so as to be at an angle of approximately 90 degrees to one another. This allows the legs of the clip to fit against the sides of a vertical and transverse framework member adjacent a corner. The bottom of the legs of the clip preferably are folded over to provide a detente which is a lock-fit in a channel provided in the framework members. The channel may be provided specially for the clips but, in a preferred form of the invention, the channel is one already provided in the framework member, for example to retain an adaptor used in the system of the above mentioned US patent for adapting the system to different thicknesses of infill member.

Preferably four such clips are used with each infill member, one adjacent each corner. However, if desired a lesser number may be employed, e.g. a pair of diametrically opposed corners where this will give adequate retention. The clip system is easily fitted after the infill has been placed in position and before the gasket is inserted completing the operation.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a partial perspective view of a curtain system embodying the retention of the invention;

Figure 2 is a vertical section through another form of framework member; and

Figure 3 is an elevational view of the embodiment of figure 2.

Referring to the drawings, a curtain wall system generally designated 10 is illustrated comprising vertical framework members 12 horizontal framework members 14. The vertical framework members 12 include a reinforcing box section 16 and thus are conventional curtain wall members. The horizontal members 14 include no such box portion

but are otherwise identical to the members 12.

Each of the framework members has a generally T-shaped cross section and includes an elongated central support portion 20 defining a pair of opposed shoulders for seating the edges of a pair of adjacent infill panels 22, 24. As illustrated, the infill panel 22 is a double glazed unit, while the infill panel 24 is a cladding panel. The framework members 12, 14 have channels 26 shaped to receive and grip the foot 28 of a flexible gasket 30. The gasket 30 has a transverse limb 32 adapted to extend toward or over the associated shoulder to bear against and retain the infill 22, 24. The thickness of the infill 24 is substantially the same as the cross sectional length of the support section 20 of the associated framework. However the infill 22 is of substantially lesser thickness and the difference is taken up by an adaptor clip 34 retained in one of two channels 36, 38 in the support portion 20 as fully described in our above mentioned US patent. As illustrated the other channel 38 adjacent the infill 22 retains a beading member 40 which aids sealing and/or drainage of the infill unit 22.

In normal use of the system illustrated, one of the infill members, for example the glazing unit 22, would be placed into the square opening defined by the framework members 14 and 12 and the gasket 30 fixed into place therearound thus retaining the infill 22. Where additional retention is required, in accordance with the present invention, additionally two or more clips 42 are provided. These are generally U-shaped in appearance having a central retaining portion 44 and two legs 46. The legs 46 are skewed with respect to the central portion 44 so as to be substantially mutually orthogonal. As can be seen more clearly in figure 2, each of the legs 46 terminate in a curled over portion 48 which acts as a detente with the sloping sidewall of the channels 38. Thus, once the infill 22 has been placed in the opening formed by the framework members 12, 14 four such clips 42 as shown in figure 1 with the retaining portion 44 across each corner of the infill with the legs 46 conforming closely to the adjacent side walls of the framework members 12, 14. Pushing the clips downwardly (towards the infill) allows the turned up portions 48 to 'lock' into the channels 38 where the clips are thus retained and, in turn, retain the infill. The gaskets 30 are then put in place in the normal way.

Removal of the clips and/or the infill is a simple reversal of the above process. The gasket 30 is removed exposing the clips and a tool slid between the framework member sidewall and the clip leg 46 to dislodge the turned up portion 48 from its channel 38. Each clip may then be removed after which the infill is simply taken out. This procedure does not disturb adjacent gaskets or infills and thus the

flexibility of the system is preserved in that if a cladding panel is to be replaced with, for example, a window, this may be done quickly and simply without disturbing the entire wall of the building.

The device of the invention provides a simple easy to use and extremely economical solution to the requirement to provide additional retention to building systems of the type described when this is necessary for conditions of wind loading or local regulations.

Claims

1. A curtain wall system for the cladding of a building which comprises framework members for receiving and seating infill panels, and gaskets adapted to be received within the framework members to extend over and retain the infills, characterised in that, for a given infill, one or more clips are provided which locate in respective channels in orthogonally disposed adjacent framework members and retain the corner of the infill.

2. A system as claimed in claim 1 in which the clips are made of sheet metal and are generally 'U'-shaped in appearance.

3. A system as claimed in either of claims 1 or 2 in which the U-shaped legs of the clip are skewed at an angle of approximately 45 degrees outwardly so as to be at an angle of approximately 90 degrees to one another.

4. A system as claimed in any of claims 1 to 3 in which the bottom of the legs of the clip are folded over to provide a detente which is a lock-fit in a channel provided in the framework members.

5. A system as claimed in claim 4 in which the channel is one already provided in the framework member, for example to retain an adaptor.

6. A system as claimed in any of claims 1 to 5 in which four such clips are used with each infill member, one adjacent each corner.

7. A system as claimed in any of claims 1 to 5 in which a pair of clips are used in diametrically opposed corners.

8. A system as claimed in any of claims 1 to 7 wherein the clips are fitted after the infill has been placed in position and before the gasket is inserted completing the operation.

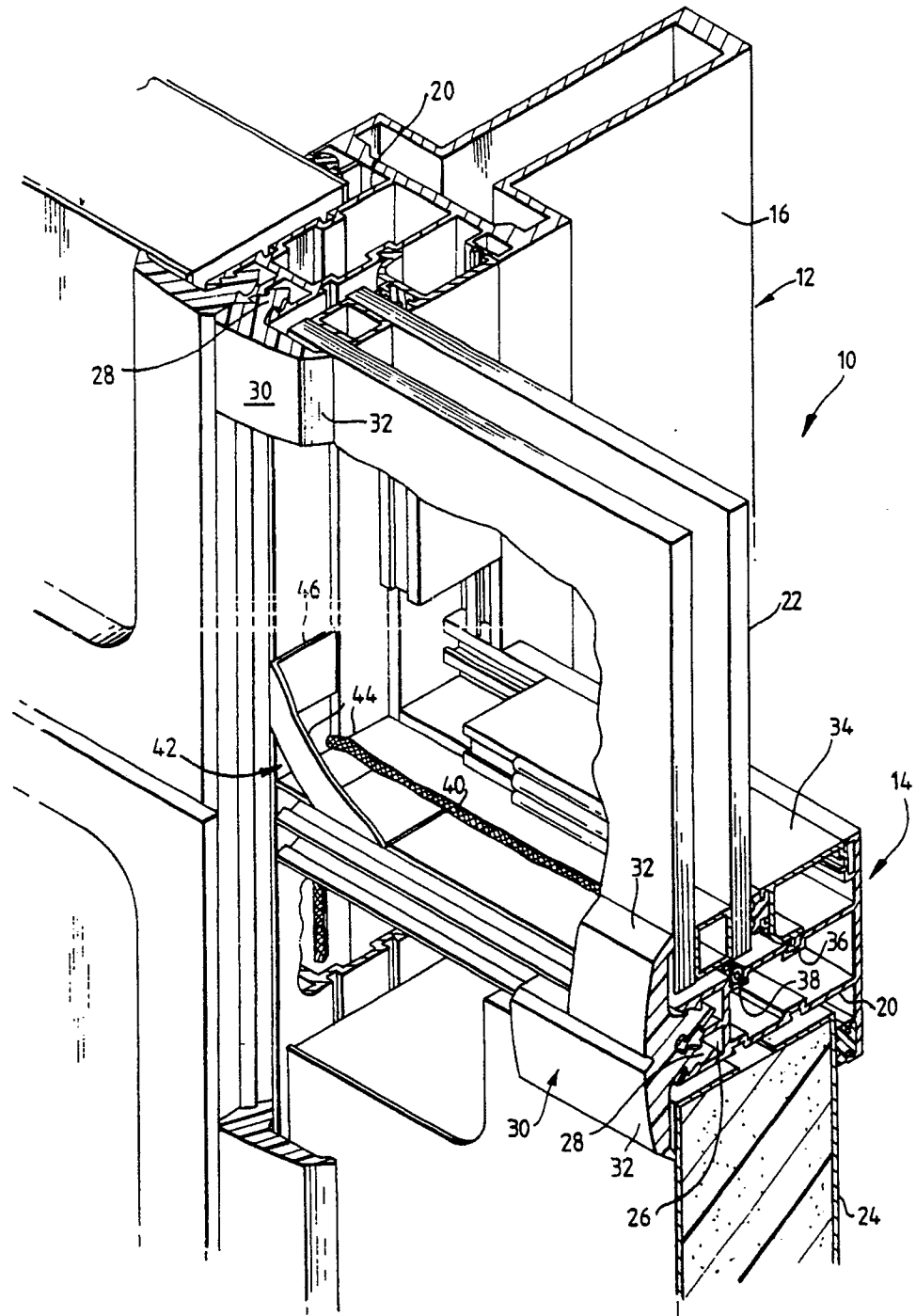


Fig.1.

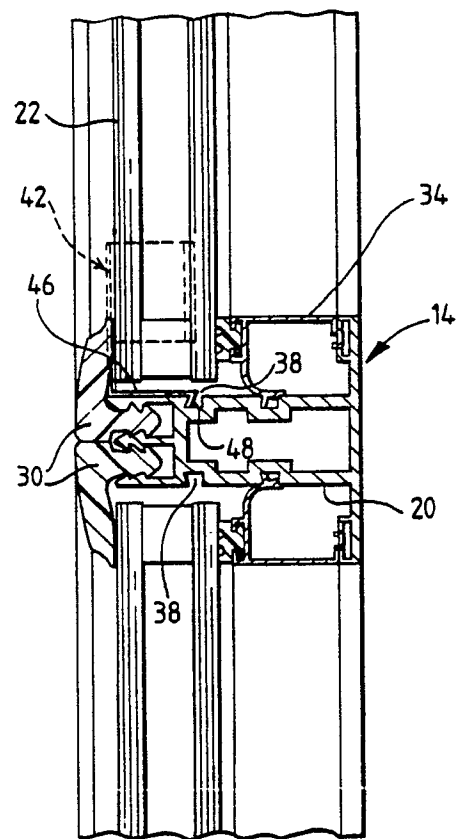


Fig. 2.

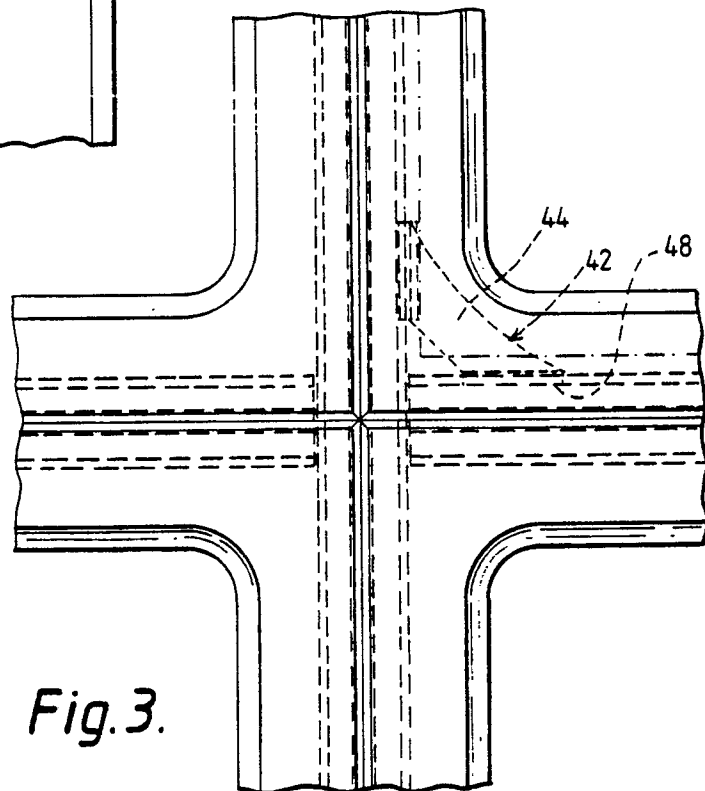


Fig. 3.