(12) UK Patent Application (19) GB (11) 2 024 908 A

(21) Application No **7828676**
(22) Date of filing **4 Jul 1978**
(23) Claims filed **4 Jul 1978**
(43) Application published **16 Jan 1980**
(51) INT CL³ **E04B 2/88**
(52) Domestic classification **E1W** 12 CCB
(56) Documents cited
GB 1510303
GB 1459401
GB 1284226
GB 1246515
GB 1197360
GB 1145162
GB 905503
GB 832132
(58) Field of search **E1W**
(71) Applicants
Norcros Investments Limited, Reading Bridge House, Reading, Berkshire, R91 8PP
(72) Inventors
Arthur Leonard Winston, Laurence Frederick Salisbury
(74) Agents
Mathisen, Macara & Co

(54) Curtain walling assembly

(57) The requirement to be met is the provision of a curtain walling assembly with neither transomes nor mullions exhibiting, from outside a building, any form of securing means.

The mullions of a curtain walling assembly are provided with an integral T-section portion defining two recesses arranged to receive edge portions of adjacent panels. The transomes 50 have a detachable T-section facing strip 80 likewise defining recesses and include hook section members 78 interengageable with a hook-section projection 70 of the transome.

A load bearing strip 84, a spacer 86 and a sealant 88 serve together to lock the facing strip in position.

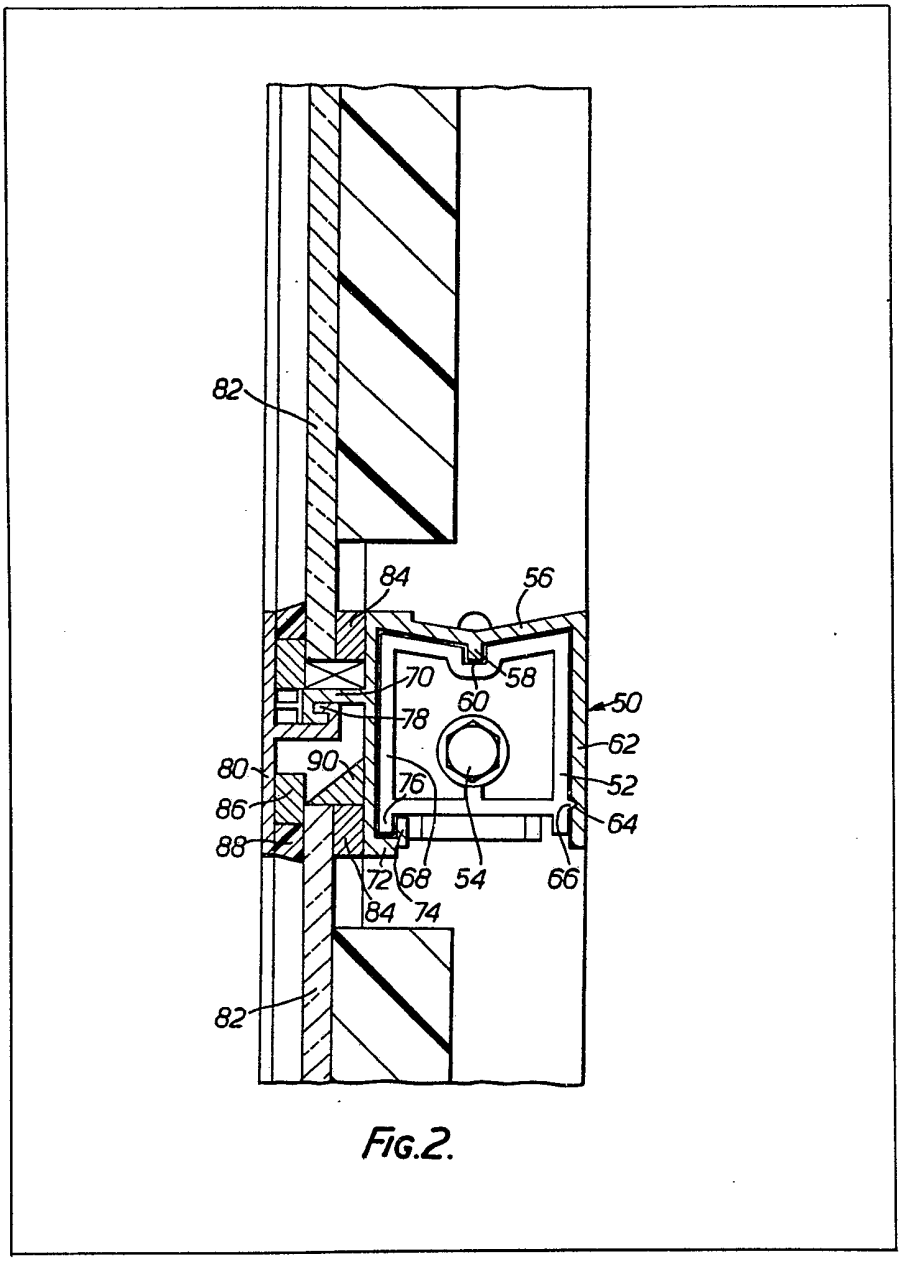

FIG.2.

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy

GB 2 024 908 A

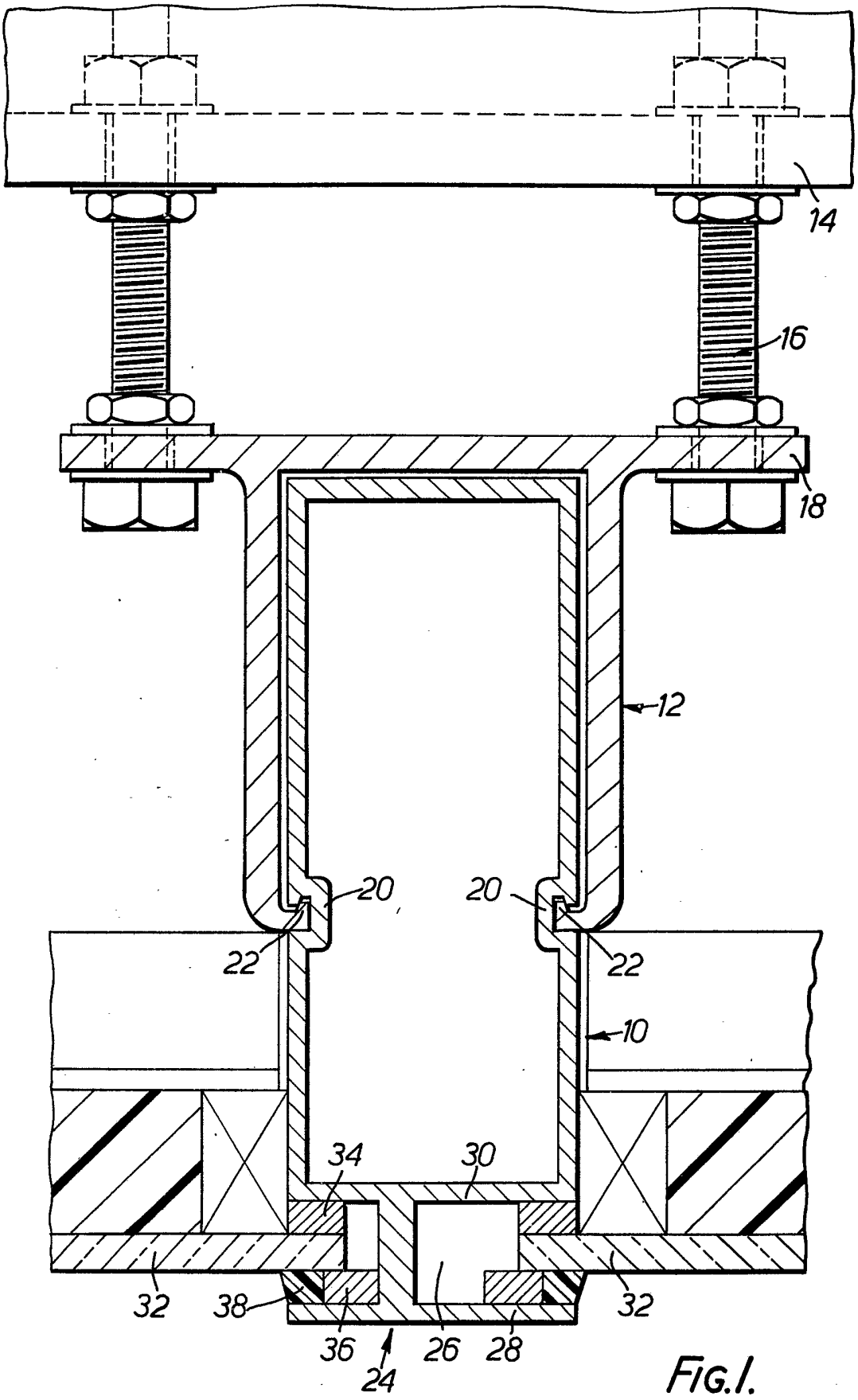

FIG.1.

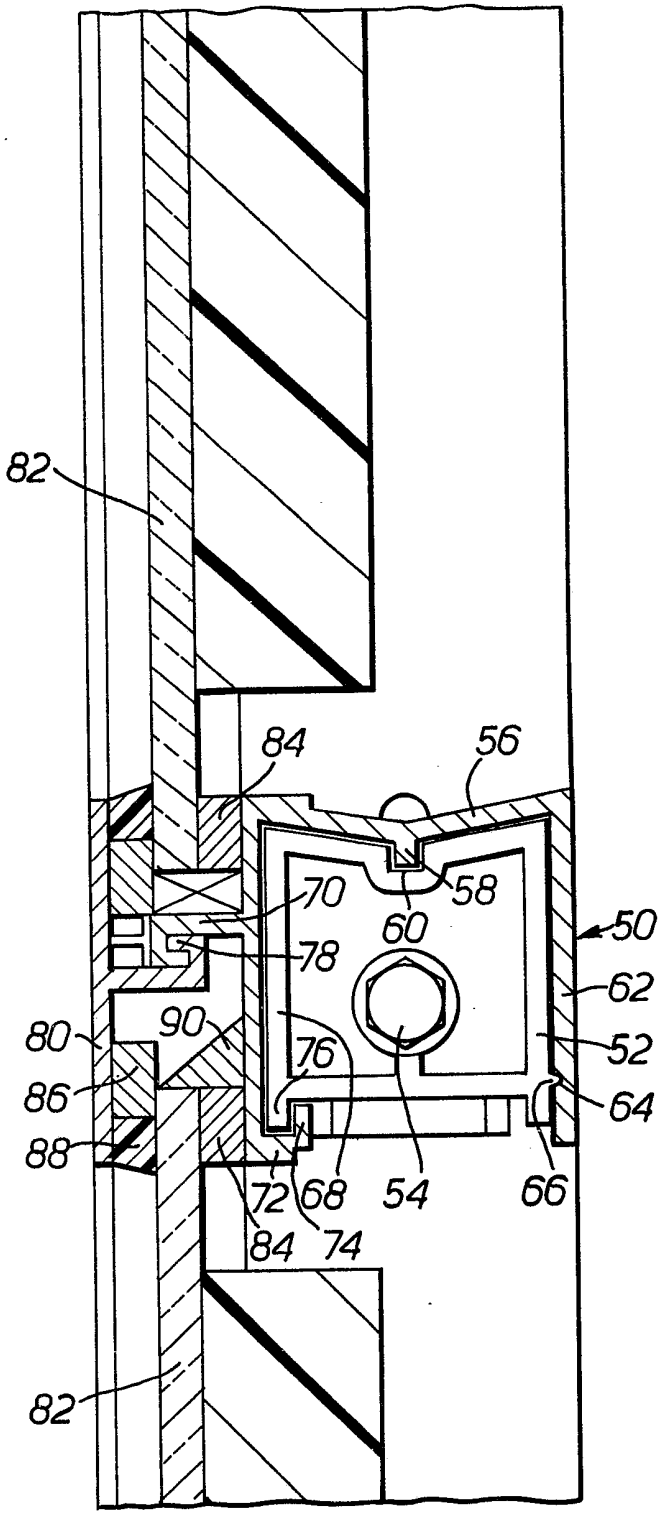

FIG.2.

SPECIFICATION

Curtain walling assembly

This invention relates to a curtain walling assembly that is a lightweight cladding applied to the outside of a framed building.

Curtain walling has become of increasing importance in recent years because many buildings are built with a steel or reinforced concrete frame and the outer wall therefore requires little structural strength. If is frequently desirable that the curtain walling should incorporate areas of glazing as well as opaque areas and certain architects prefer that the outer surface should have as smooth appearance as is possible.

However, a totally smooth appearance is difficult to achieve because glazing and other panels must be firmly secured and this requires that some restraint shall be applied to the panels from the direction towards the outer faces of such panels.

This outer restraint is often provided by the transomes which partially overlap the panels, of glass or other material, and it is necessary to secure the exposed portions of the transomes to an element which, in turn, is secured to the frame of the building. The external portions of the transomes can be secured by screws or bolts but this provision is both unsightly, liable to introduce the possibility of leakage, and give rise to corrosion with consequent staining of the facade of the building.

According to the present invention there is provided a curtain wall assembly comprising means for mounting the assembly on a structural member of a building, a transome arranged to be secured to two adjacent mullion members, a facing strip arranged to lie outwardly of the transome member, means interengaging the facing strip and the transome invisible from the outside of the building when *in situ,* and means for securing panels to the transome and for locking the interengaging means.

Further according to the present invention there is provided a curtain wall assembly comprising a plurality of mullions, a plurality of transomes spanning and secured to the mullions, each mullion and each transome having recesses for receiving panels of the assembly, the recesses of the mullion being defined by integral, asymmetric T-section extensions and the recesses of the transomes being defined by separate T-section members interengageable by hook-section projections with complementary hook section projections of the transome and means for locking the hook-section projections together and for holding the panels in place when the assembly is completed.

A curtain walling assembly embodying the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a horizontal section through a portion of curtain walling in accordance with the invention; and

Figure 2 is a vertical section of a portion of curtain walling showing a transome in cross-section.

Referring now to Figure 1, a mullion 10 basically of box section is mounted partially in a channel-section member 12 preferably of extruded aluminium which is in turn secured to the frame 14 of a building by bolts 16 passing through flanges 18 of the extrusion 12.

The mullion 10 includes tow opposed, outwardly-directed, recesses 20 which *in situ,* as shown, are engaged by complementary ridges or projections 22 at the free ends of the channel-section extrusion 12. Outwardly of the extrusion 12 the box section portion of the mullion carries a T-section extension 24 of asymmetric form and the recesses 26 formed between the cross member 28 of the T and one shorter side 30 of the box section portion of the mullion accommodate edge portions of glass or other panels 32. As is conventional the glass is secured by a load bearing strip 34 inwardly and by a spacer 36 and a sealant 38, preferably of silicone material on the outside. If the panels 32 are not of glass but are opaque, then they may incorporate a foamed insulation material 40 on their internal faces.

Turning now to Figure 2, a transome 50 is mounted on a support member or stool 52 which is secured, for example, by bolts 54 to the mullions 10 at each end thereof. It is normal practive for the transomes to extend only between adjacent mullions whereas the mullions extend continuously vertically between floors.

The transome 50 is of generally inverted channel section with the transverse member 56 concave in cross-section so as to form a drainage path for any condensation water which may be formed on the inner face of the panels or any water which seeps through the wall from outside. Internally the transverse portion 56 has a longitudinally-extending ridge 58 which engages in a complementary groove 60 of the support member or stool 52.

The inner one 62 of the legs of the channel section transome has a groove 64 extending longitudinally thereof adjacent its free end and this groove is engaged by a corresponding longitudinally-extending projection 66 of the support member 52.

The outer leg 68 of the channel section transome member carries an outwardly-extending projection 70 of hook section somewhat nearer to the transverse connecting portion 56 of the channel section member than to its free edge and at the free edge carries an inwardly-projecting flange 72 which also carries an upwardly extending ridge 74 thus forming a further, narrow channel engaged by a complementary projection or ridge 76 of the support member 52.

The hook section projection 70 of the main transome member 50 is engaged by a complementary hook section portion 78 of an outer, facing strip 80 and these two hook section portions inter-engage so as firmly to secure the

exposed facing strip 80 of the transome member without any visible securing means being required.

As shown, panels 82 engaged behind the outer strip 80 are mounted in position by a load-bearing strip 84, a spacer 86 and a sealant 88, for example, of silicone material, and as an additional precaution against ingress of moisture a further seal may be provided, of triangular section, spanning an edge face of the lower panel 82 and the load bearing strip 84.

As will be apparent the load bearing strip, the seal and the spacer all serve to lock the outer, facing, strip of the transome in position without the need for any visible securing means. The hook-like projections of the facing strip 80 and the main transome member may be continuous or discontinuous. In the latter arrangement the lengths of projection will be slightly less than the gaps to facilitate insertion and interengagement.

CLAIMS

1. A curtain wall assembly comprising means for mounting the assembly on a structural member of a building, a transome arranged to be secured to two adjacent mullion members, a facing strip arranged to lie outwardly of the transome member, means interengaging the facing strip and the transome invisible from the outside of the building when *in situ,* and means for securing panels to the transome and for locking the interengaging means.

2. A curtain wall assembly comprising a plurality of mullions, a plurality of transomes spanning and secured to the mullions, each mullion and each transome having recesses for receiving panels of the assembly, the recesses of the mullions being defined by integral, asymmetric T-section extensions and the recesses of the transomes being defined by separate T-section members interengageable by hook-section projections with complementary hook-section projections of the transome and means for locking the hook-section projections together and for holding the panels in place when the assembly is completed.

3. An assembly according to claim 1 or claim 2, wherein the hook-like projections are continuous and extend continuously.

4. An assembly according to claim 2 or claim 3 wherein the locking means comprises spacers and sealants for the panels.

5. An assembly according to any one of the preceding claims wherein the panels have a thermally-insulating layer.

6. An assembly according to any one of the preceding claims wherein each transome is of channel section.

7. An assembly according to claim 6 wherein the transverse portion of the channel section is concave to form a drainage path for condensation water.

8. An assembly according to claim 7 comprising an internal reinforcing ridge extending longitudinally of the transverse portion.

9. An assembly according to any one of the preceding claims wherein the transome is of extended aluminium.

10. A curtain walling assembly substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1980. Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.