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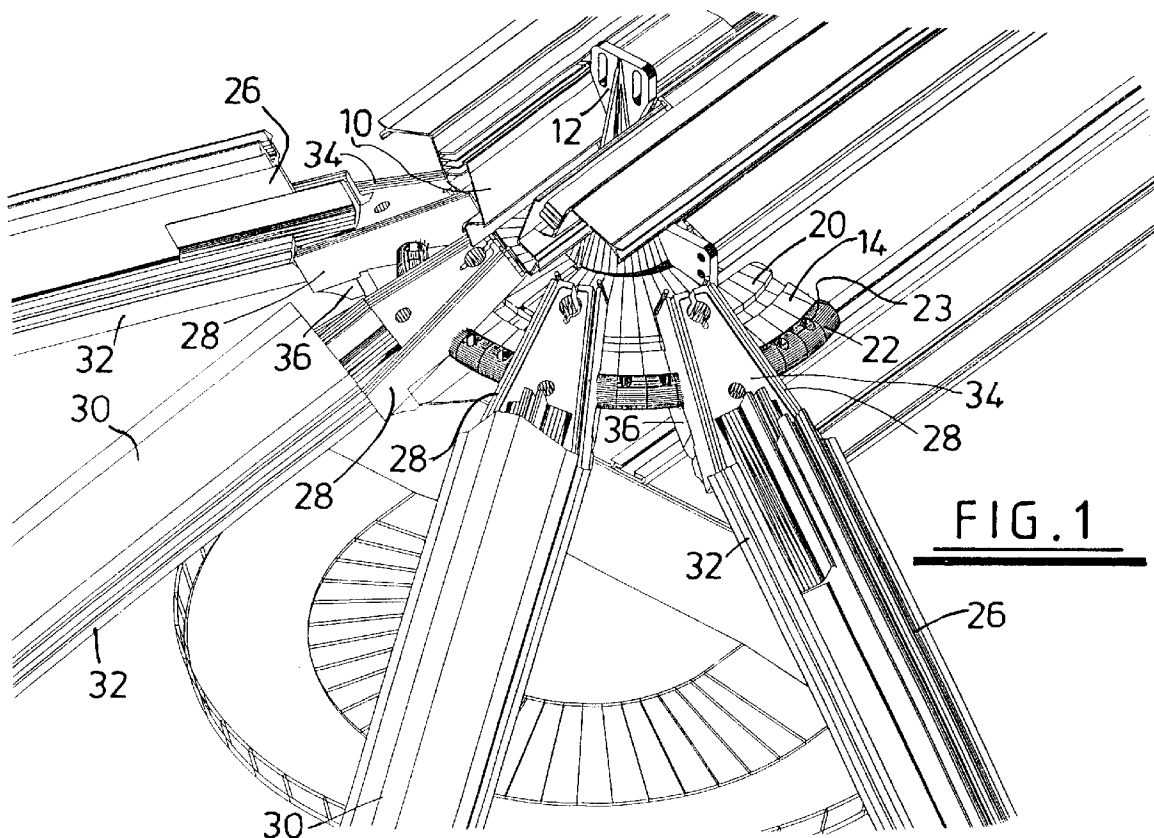
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(54) Roof assemblies

(57) A roof assembly for hipped conservatory roof comprises a ridge end (14), having a rim (22) to which

glazing bars (26) are secured via intermediate connectors (28) that clamp onto the rim.



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Description

This invention concerns roof assemblies, especially for conservatories.

It is known to construct conservatory roofs from polycarbonate roofing panels supported between glazing bars. The glazing bars are supported by and connected at one end to a ridge structure and at the other end are supported by and connected to an eaves structure. Such ridge structures comprise a pair of flanges which the glazing bars are supported on and connected to. A ridge capping is connected to the ridge structure and the ends of the glazing bars and roofing panels. The ridge capping comprises two downwardly extending flaps or wings which overlie the ridge structure and the ends of the glazing bars and roofing panels to provide such cover. The wings of the ridge capping are kept spaced apart from the roofing panels so as to define a passageway therebetween in order to allow ventilation of the ridge structure and consequently the interior of the conservatory.

Hipped conservatories have glazing bars extending from the ridge end radially. The flanges of the ridge structure are continued around an end thereof and the glazing bars are bolted thereto in appropriate positions. The angle of the flange is, of course, fixed and so affords no flexibility in erection of the conservatory.

An object of this invention is to provide a ridge structure suitable for a conservatory.

According to this invention there is provided a roof assembly for a hipped roof comprising a ridge end member and glazing bars mountable thereon via connectors.

The glazing bars are preferably mountable on the ridge end at different angles relative thereto. The preferred ridge end member has a rim on which the connectors are securable. The connectors preferably have separable parts whereby the rim of the ridge end member can be gripped between them. In one preferred embodiment, the separable parts slide together and in another preferred embodiment the separable parts are hingedly connected. Alternatively, the two parts may be secured together by additional securing means. Thus, whether the two parts are interconnected in any way, for clamping to a ridge end member, the two separable parts of the connector may be secured together by any suitable means, such as a bolt or the like through the two parts.

The rim of the ridge end is preferably of a circular cross-section and the connector parts preferably have lateral grooves therein corresponding in section to a part of the rim. Either or both of the rim and the connector parts grooves may be profiled to provide grip therebetween. Preferably either or both of the rim and grooves have surface serration.

Preferably glazing bars are attachable to the connectors by engagement of suitably shaped parts of the connectors with the glazing bars. Preferably glazing bars are slidably engageable with parts of the connec-

tors.

Preferred glazing bars are of the type which are the subject of our co-pending U.K. Patent Application No. 9402179.7. These are of generally inverted T-section and so the connectors preferably have a slot for receiving the stem of a T-section glazing bar. The connectors preferably further have flanges to either side of the slot to engage returned ends of glazing bar flanges. Preferably ends of the flanges of the connectors are enlarged to provide grip.

The glazing bars used in the invention may have ducted stems, in which case it is desirable for connectors to have projections that can engage in said ducts. A screw or the like through the stem side into a projection or alternatively through a part of the connector into a screw port of the glazing bar may further secure a glazing bar to a connector.

The connectors may also have through holes in a forward end thereof, whereby the connectors can be affixed to a ridge end other than between their separable parts.

The preferred ridge end used in the invention is an aluminium casting and the connectors are preferably plastics mouldings.

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

Figure 1 shows a hipped conservatory roof ridge end;

Figure 2 is another view of the roof ridge end of Figure 1 partially assembled;

Figure 2A is a rear view of the roof ridge end of Figure 1 with only one glazing bar attached;

Figures 3A and 3B are opposed views of a ridge end component;

Figure 4 is a side view of a two part glazing bar connector for connection thereof to the ridge end component of Figure 3;

Figure 5 is a plan view of the connector of Figure 4;

Figure 6 is a rear elevation of one part of the connector of Figure 4;

Figure 7 shows detail of the connector of Figure 4; and

Figure 8 is a plan view of the other part of the connector of Figure 4;

Figure 9 shows serrations of a connector or a ridge end component;

Figure 10 shows another form of hipped conservatory roof ridge end;

Figure 11 is a side elevation of a connector used in forming the ridge end of Figure 10;

Figure 12 is an underside plan view of the connector of Figure 11;

Figure 13 is a top plan view of the connector of Figure 11;

Figure 14 is a front elevation of a top part of the connector of Figure 11; and

Figure 15 is a rear elevation of a top part of the connector of Figure 11.

Referring to the accompanying drawings, a hipped conservatory roof ridge end comprises an extruded aluminium ridge member 10, which is described in detail in our co-pending U.K. Patent Application No (our file P3511). The ridge member base is cut back from one end thereof to receive post part 12 of a cast aluminium ridge end 14. The post 12 has extending rearwardly a lug 16 with a through hole 18, whereby the ridge end 14 can be secured by means of a nut and bolt (not shown) to the ridge member base.

The ridge end 14 has at the base of the post 14 a skirt 20 which extends slightly more than a semi-circle about the post and is generally perpendicularly to the post. At its periphery the skirt has a circular section rim 22 with a series of holes 23 therethrough at right angles to the skirt. The rim 22 has a serrated surface, the serrations 24 running in an axial direction of the rim.

Glazing bars 26 are connected to the rim 24 of the ridge end 14 by means of two part connectors 28. Roofing panels (not shown), such as, of polycarbonate are supported on the glazing bars and held in place by upper and lower cappings 30, 32. This arrangement is described in detail in our co-pending U.K. Patent Application No. 9402179.7

The connectors 28 have upper and lower parts 34 and 36 respectively that slide together by a tongue and groove arrangement whereby the spacing therebetween can be adjusted. The two parts 34, 36 together act as clip which fits around the rim 22 of the ridge end 14. The upper part 34 of the connector 28 has a groove 38 in its underside corresponding to the shape of the rim 22 and the lower part 36 of the connector has a groove 40 in its topside also corresponding to the rim 22. The lower part 36 has at one end groove 42 and the upper part 34 has a stepped portion 44 formed as a tongue 46 to provide the aforesaid tongue and groove arrangement.

The two parts of the connector each have through holes 48, 50 respectively which are generally aligned when the two parts are together to receive a nut and bolt or the like for securing them together. The surface of each groove 40, 42 is serrated as shown in Figure 9 to provide grip when mounted on the serrated rim 22 of the ridge end 14.

The upper part 34 of the connector 28 has a rearwards extension 54 comprising a pair of spaced parallel generally L-shaped members 56 in a back to back arrangement. The members 56 have first limbs 58 that together provide a slot to receive a glazing bar 26. The glazing bars 26 are generally of inverted T-section which provides a pair of flanges which are turned back on themselves at their remote ends and an upstanding limb which is bifurcated to form an upwardly open channel for receiving the upper capping. The L-section members 56 have second limbs 60 extending outwardly and

slightly downwardly with enlarged edge formations 62. These edge formations slide into the returned ends of the glazing bar flanges. To secure the glazing bars to the upper connector parts 34, holes 64, 66 are provided through both members 56 to take nuts and bolts through them and the glazing bars.

The glazing bars can with the above arrangement be secured to the ridge end at different angles by altering the spacing between the upper and lower connector parts 34, 36 to allow the glazing bar 26 to be pivoted into position and then securing the two connector parts together to grip around the rim 22 of the ridge end 14. The serration of the rim of the ridge end and the grooves of the connector parts provide additional securement.

The ridge end 14 can also have glazing bars secured directly thereto particularly for a flat roof arrangement by using the through holes 23 of the rim 22 to take securing bolts for the glazing bars.

Each connector 28 also has a screw hole 70 at its forward end. This hole takes a locking screw 72 as shown in Figure 2A, which can locate in groove 74 in the surface of the skirt 20 of the ridge end. The locking screw when screwed down into the groove provides additional security for the connection but can also serve to hold the connector and hence glazing bar in position whilst the other end of the glazing bar is connected to an eaves beam and before the connector is tightened onto the ridge end.

Turning to Figures 10 to 15 of the accompanying drawings, a ridge end arrangement is shown in which glazing bars 100 are of a type having a ducted stem 102 with a screw port 103 at or near a lower end of the stem. The ducted stem gives the glazing bars more stability against twisting. The glazing bars have cross bars 105 extending either side of the stem with end returns 106. Connectors 107 for securing the glazing bars to a ridge end 108 (which is the same as in Figures 3A and B) have been designed to suit the ducted glazing bars.

The connectors 107 are still in two parts, namely an upper part 109 and a lower part 110 (not shown in Figures 12 to 15). The two parts are held together by a bolt (not shown) through aligned holes of the two parts. The hole through the upper part 109 can be seen at 112. The upper and lower parts each have a lateral groove 114 and 116 respectively that together form a generally circular section slot for clamping onto the ridge end rim 122. The through bolt is loosened to fit the connector to the rim and then tightened to secure the connector in place. As in previous embodiments, the surfaces of the grooves may be serrated to provide additional grip on the ridge end rim.

The upper connector part 109 has a generally flat top surface 111 and formations at one end for engaging a glazing bar of inverted T-section type, the stem of which is ducted. Those formations comprise a pair of extensions 118 that are shaped to fit either side of a glazing bar each having one upwardly directed part 124, which together form a gap into which the stem of the

glazing bar is a sliding fit and a laterally extending part 126, each of which fits into the glazing bar cross bar 105 on one side of the stem.

The connectors 107 further have an upstand 128 from their top surface 111 which has side walls 130 and an end wall 132. From the opposite side of the end wall 132 is a projection 134 which is shaped so as to fit into the duct of a glazing bar stem. The end wall 132 also has a hole 136 through it positioned to align with the screw port of a glazing bar so that the two can be fastened together by means of a screw (not shown).

Alternatively, as indicated at 138 in Figure 10, a screw can be fitted through the side of a glazing bar stem into a projection 134 to fasten the glazing bar to the connector.

The top connector part 109 also has a through hole 140 at its forward end which may be used to take a locking screw in the same way as described with reference to Figure 2A of the drawings.

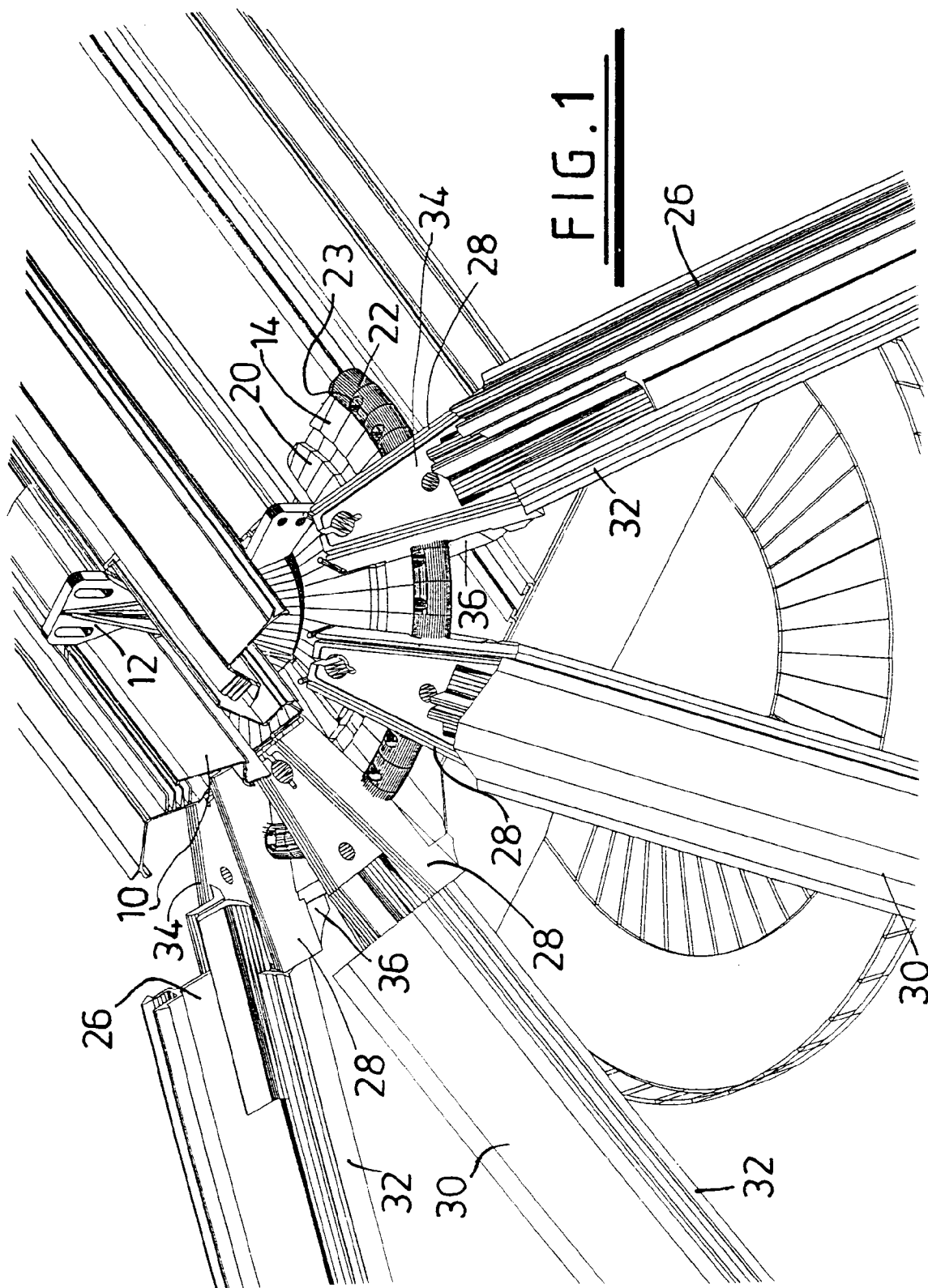
It will be appreciated that other forms of glazing bar may be used in the invention. All that is required is for the connectors to be provided with appropriate formations and/or fixing means to secure the glazing bars to the connectors.

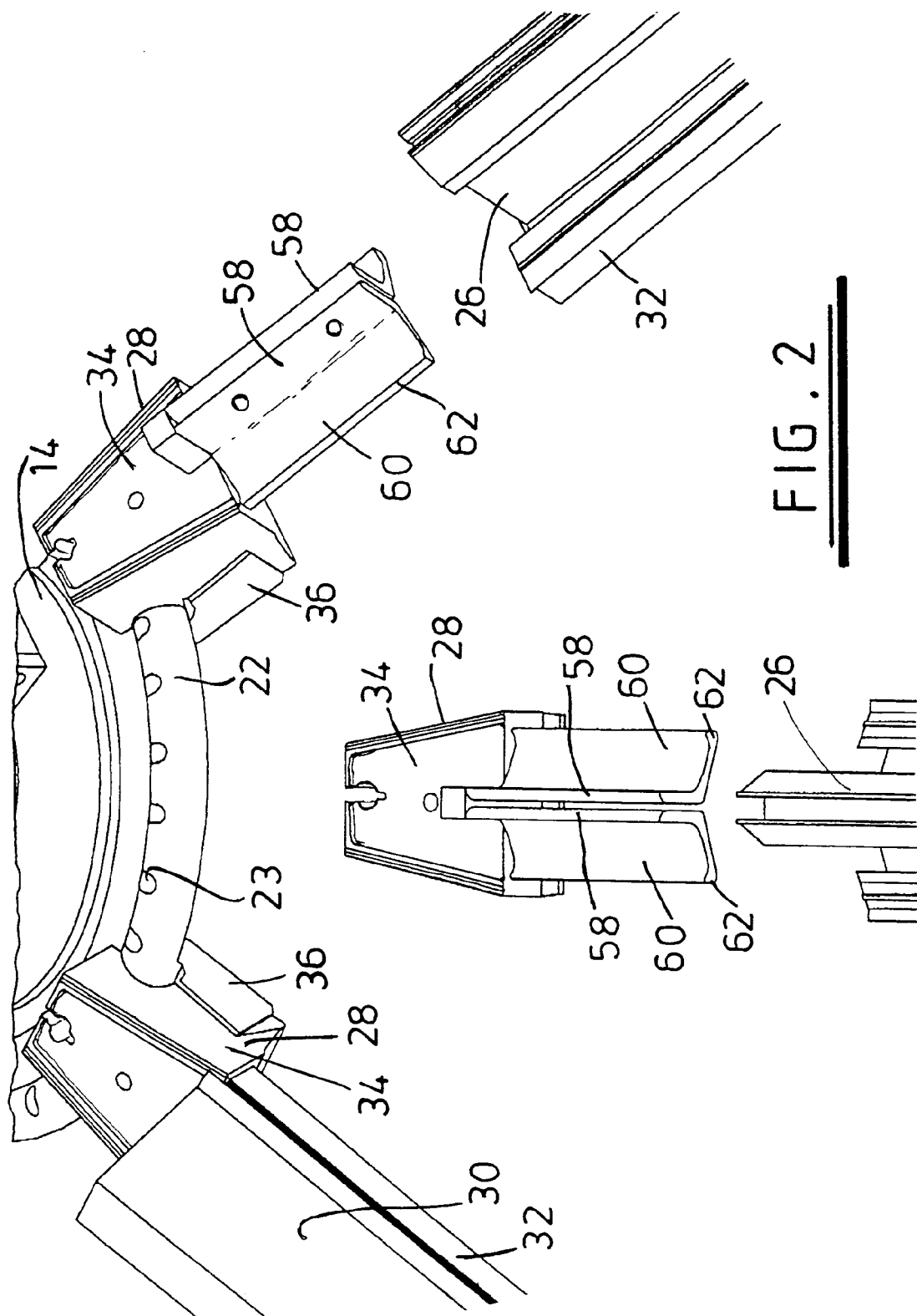
Claims

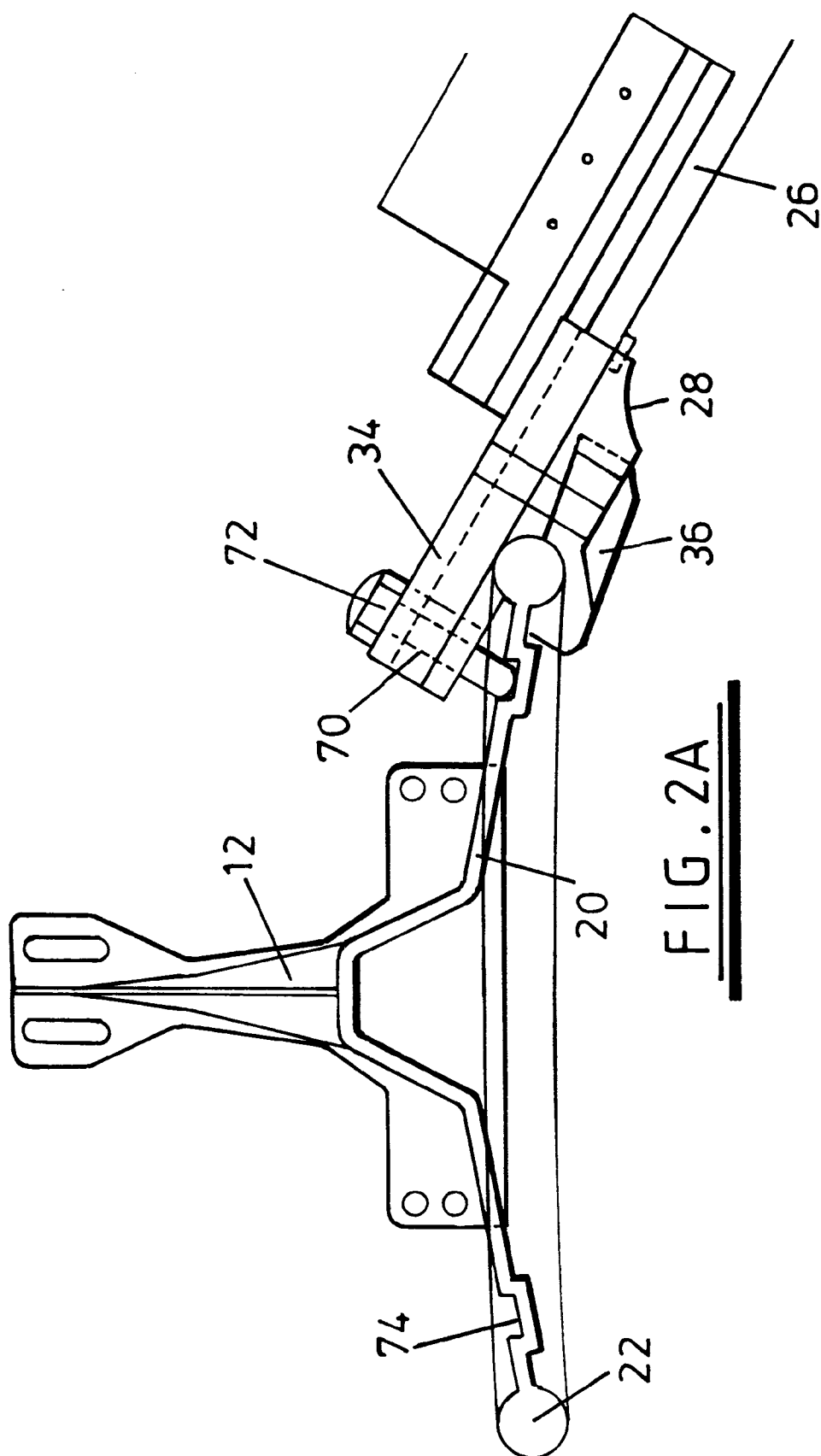
1. A roof assembly for a hipped roof comprising a ridge end member and glazing bars mountable thereon via connectors. 30
2. A roof assembly as claimed in claim 1, wherein the glazing bars are mountable on the ridge end at different angles relative thereto. 35
3. A roof assembly as claimed in claim 1 or 2, wherein the ridge end has a rim on which the connectors are securable. 40
4. A roof assembly as claimed in claim 3, wherein the connectors have separable parts whereby the rim of the ridge end may be gripped between them. 45
5. A roof assembly as claimed in claim 4, wherein the separable parts of the connectors are hingedly connected. 50
6. A roof assembly as claimed in claim 4, wherein the separable parts of the connectors are slidably connected. 55
7. A roof assembly as claimed in claim 4, 5 or 6, wherein the two connector parts are secured together by means of a bolt through the two parts. 55
8. A roof assembly as claimed in any one of claims 3 to 9, wherein the rim of the ridge end is of circular

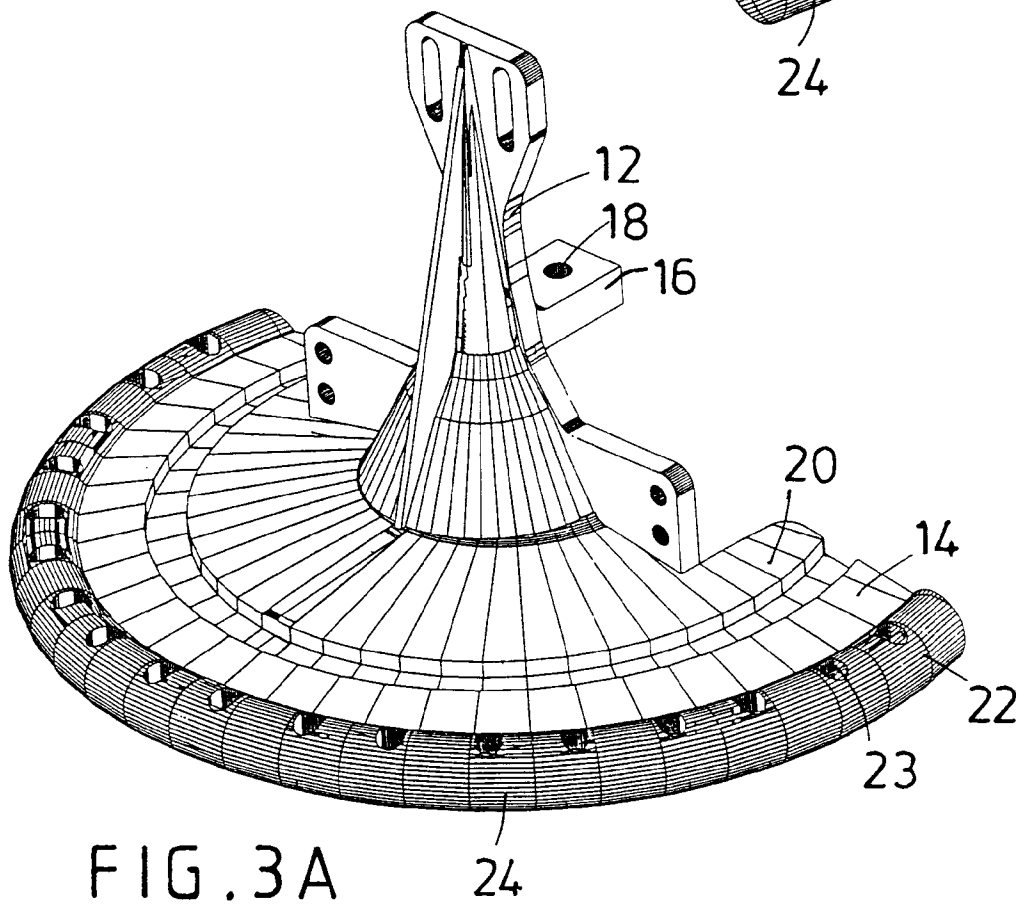
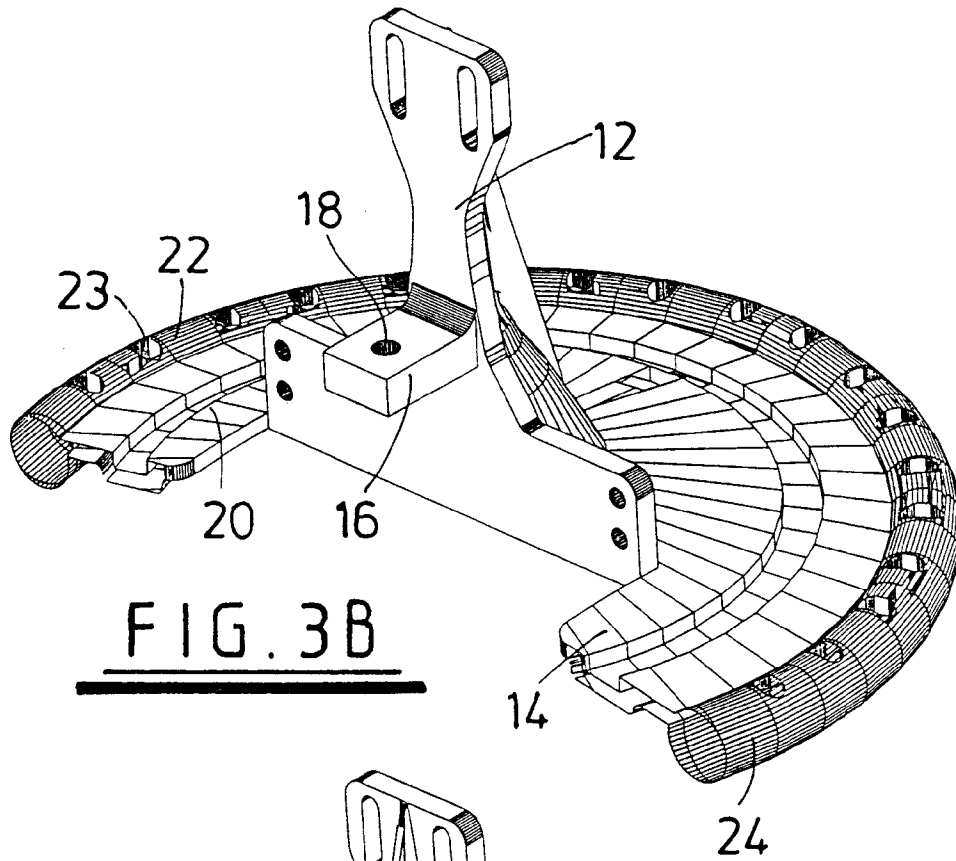
cross section.

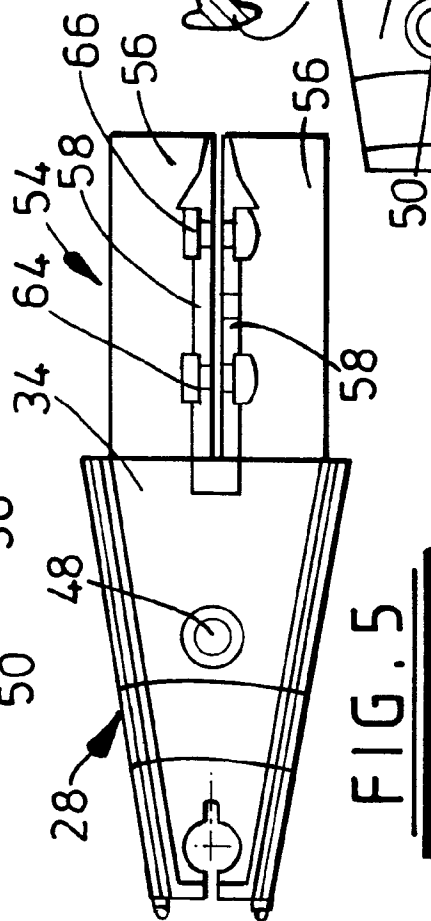
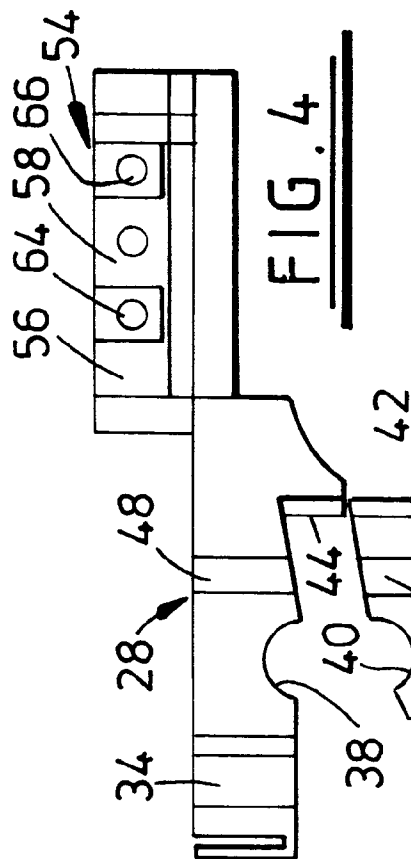
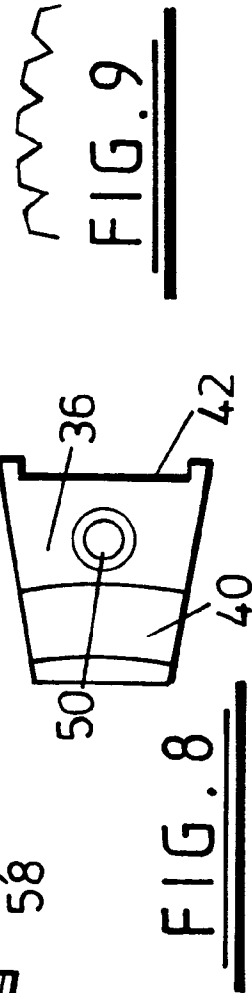
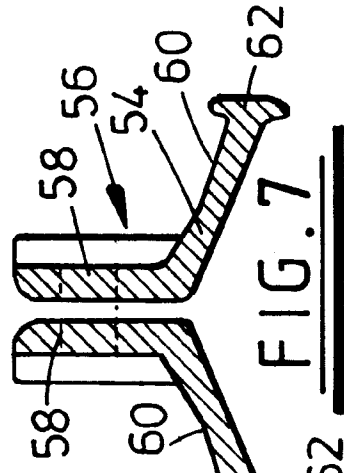
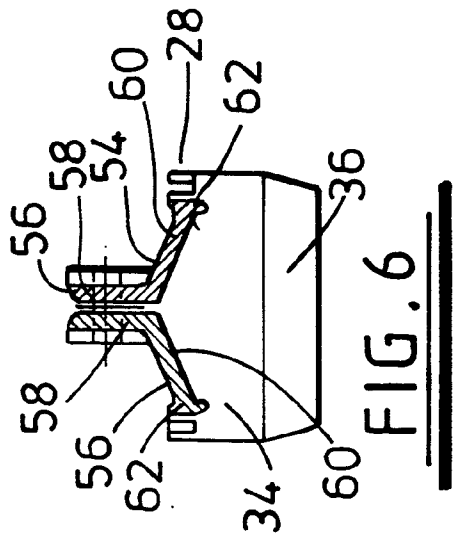
9. A roof assembly as claimed in claim 8, wherein the connector parts have lateral grooves therein corresponding in section to a part of the rim of the ridge end.
10. A roof assembly as claimed in claim 9, wherein the connector grooves are profiled to provide grip.
11. A roof assembly as claimed in claim 9 or 10, wherein either or both of the rim and connector grooves have surface serrations.
12. A roof assembly as claimed in any one of claims 1 to 11, wherein the glazing bars are attachable to the connectors by engagement of cooperating parts.
13. A roof assembly as claimed in claim 12, wherein glazing bars are slidably engageable with parts of the connectors.
14. A roof assembly as claimed in any one of claims 1 to 13, wherein the glazing bars are of inverted T-section and the connectors have slots for receiving the stems of the T-sections.
15. A roof assembly as claimed in any one of claims 1 to 14, wherein the glazing bars are of inverted T-section, the stems of which are hollow and the connectors have projections for engaging in said bottom stems.

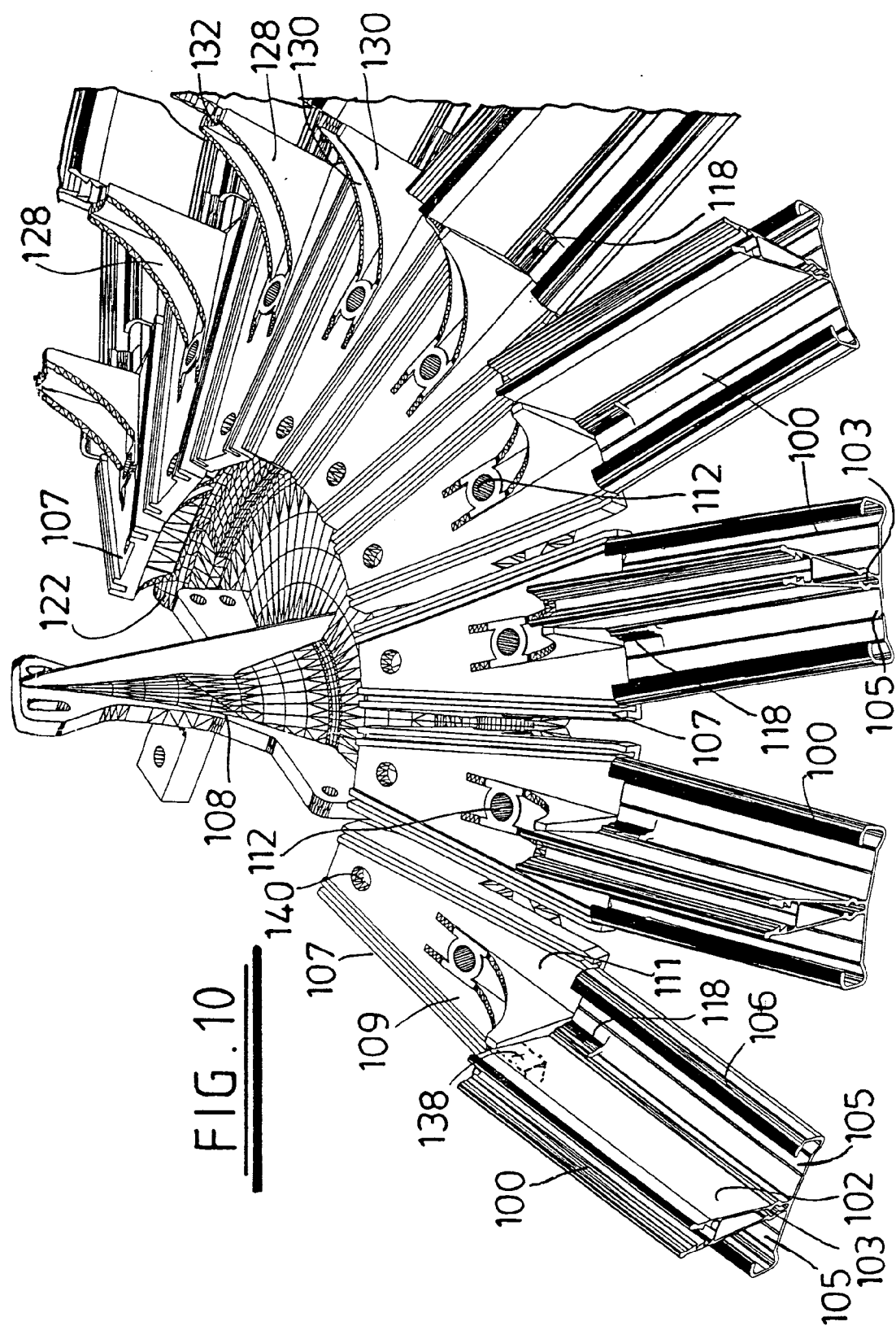


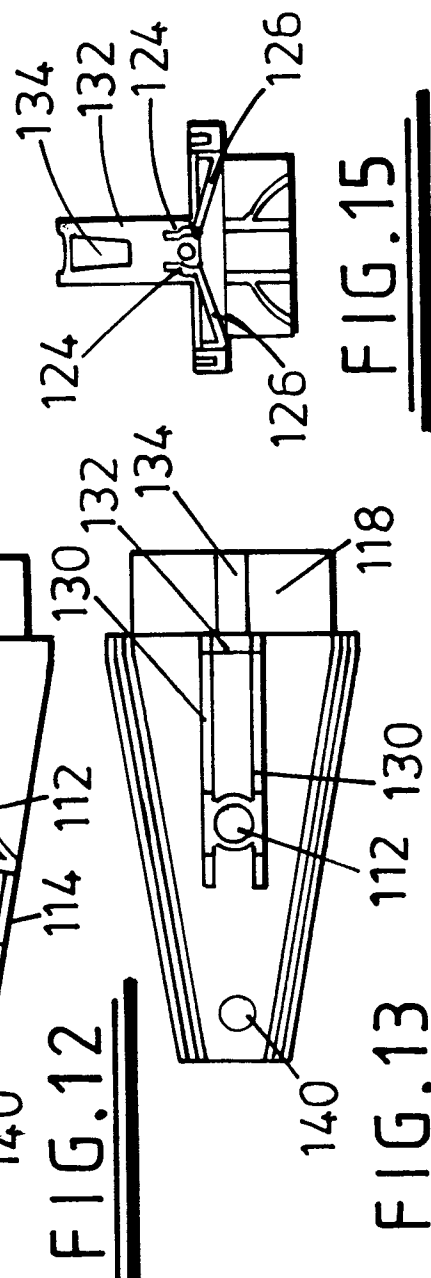
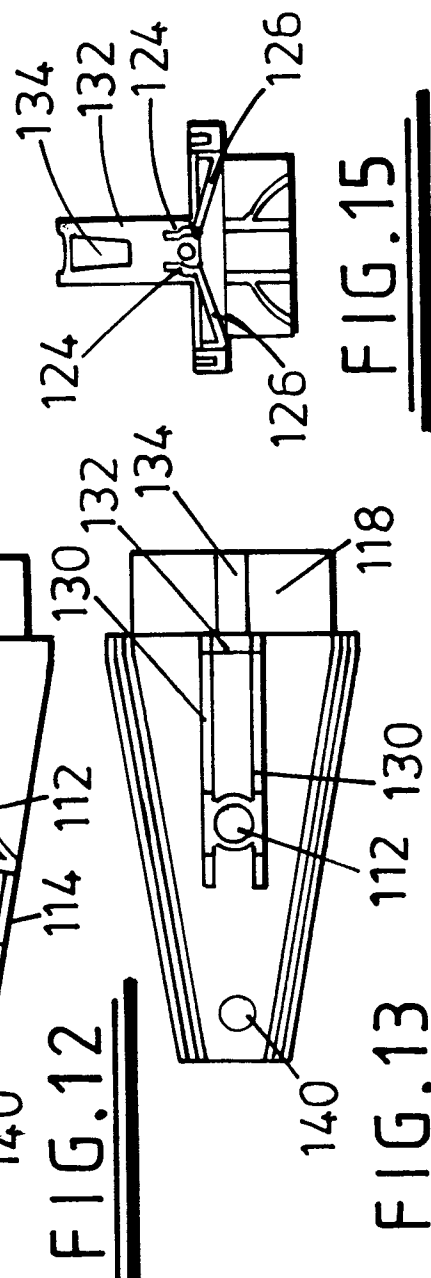
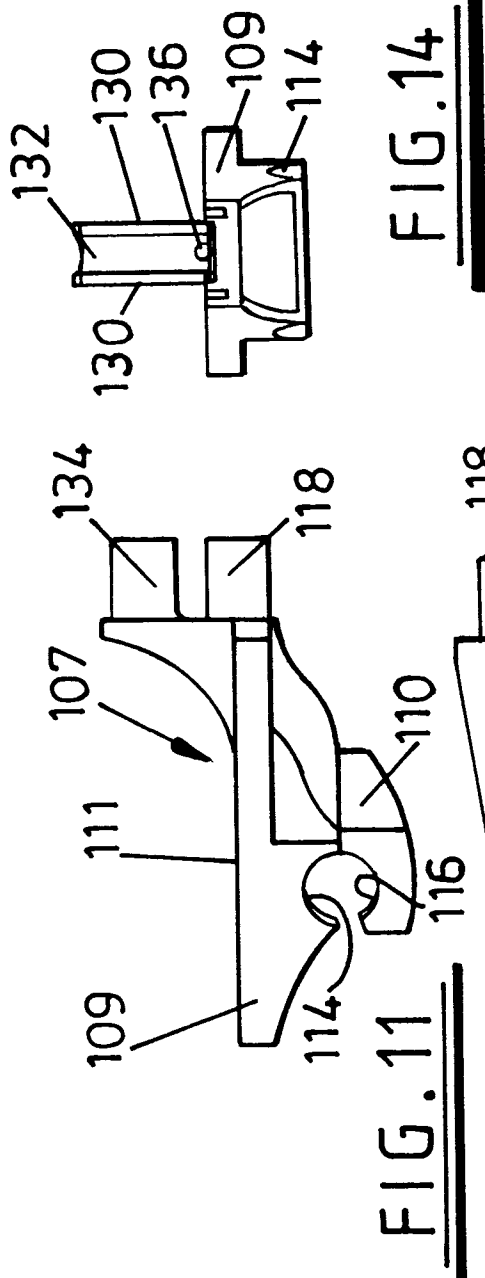
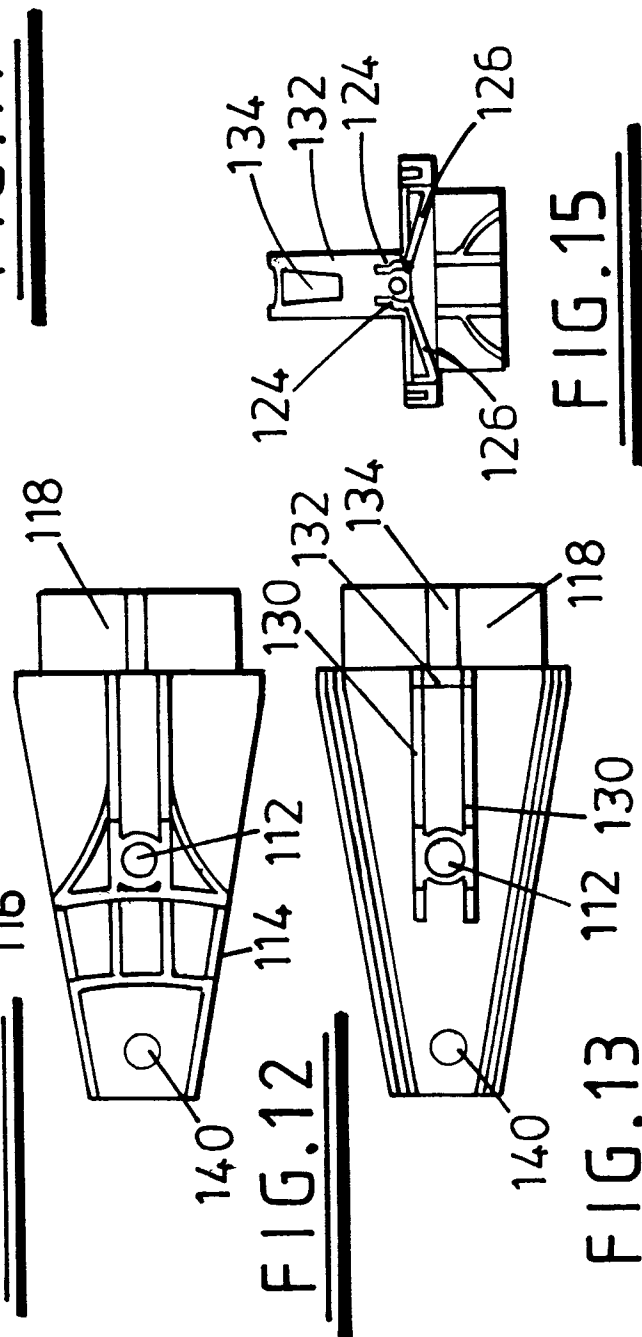
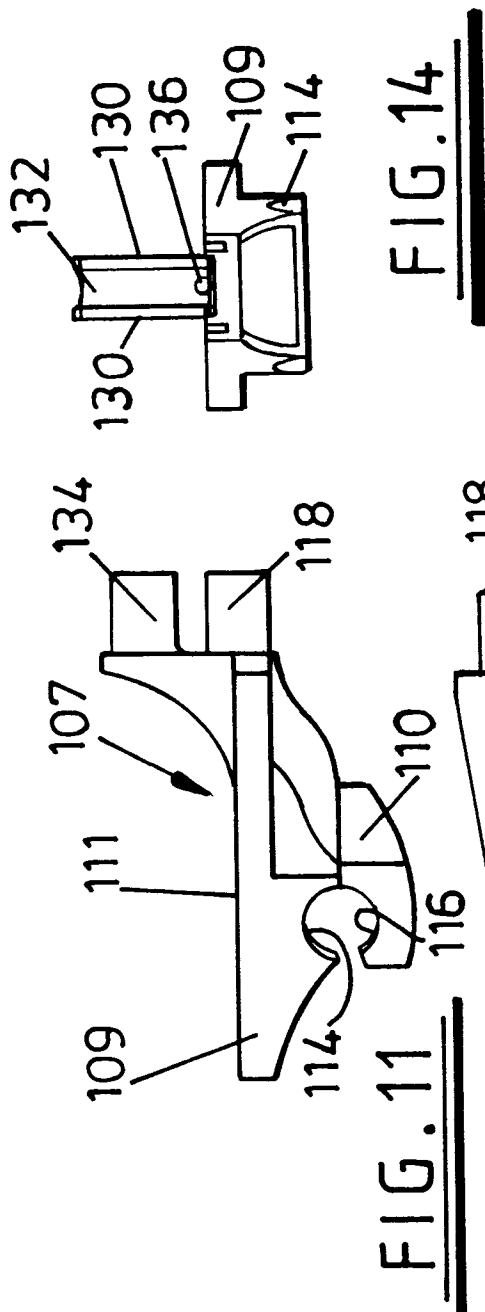














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EUROPEAN SEARCH REPORT

Application Number
EP 97 30 1513

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X A	EP 0 075 509 A (TECHNAL-FRANCE) * abstract; figures 4,5 * ---	1-3,8-15 4-7	E04D3/06 E04B7/02
X A	DE 36 40 489 A (ERBSLÖH GMBH) * column 3, line 36 - column 5; figures * ---	1-3,8 4-7	
X	GB 2 256 880 A (THERMAL PROFILES) * abstract; figures * ---	1	
A	GB 2 256 658 A (PARK LANE ARCHITECTURAL GLAZING) * abstract; figures * ---	1	
A	WO 91 01419 A (BEER) * abstract; figures * ---	1	
A	GB 2 214 964 A (DURAFLEX) * abstract; figures * ---	1-6,8	
A	GB 2 204 627 A (F. SAGE COMPANY) * abstract; figure 4 * -----	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6) E04D E04B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 June 1997	Examiner Righetti, R
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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