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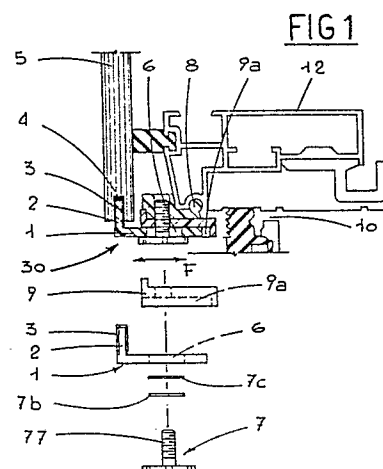
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**Device for the adjustable mechanical support of continuous glass facades for houses and multistorey buildings.**

The device for the adjustable mechanical support of continuous glass facades in houses and multistorey buildings is of the type consisting of a metal bracket (1) which can be joined at one end to the structural framework (10) of the facade and equipped, at the other end, with a terminal tab (2) fitted, together with its covering seal (3), inside an appropriate recessing (4) in the sheet of glass (5) itself. The bracket (1) can be connected to the structural framework (10) by the interposition of securing devices (30) with adjustment of its relative position with respect to the structural framework (10), so that the latter can be slid towards and away from the structural framework (10).



## Description

### DEVICE FOR THE ADJUSTABLE MECHANICAL SUPPORT OF CONTINUOUS GLASS FACADES FOR HOUSES AND MULTISTOREY BUILDINGS.

This invention concerns an adjustable mechanical device for continuous glass facades on houses and multistorey buildings, of the type consisting of a metal bracket equipped, at one end, with a terminal tab fitted, together with its covering seal, inside an appropriate recessing in the sheet of glass itself.

In recent years in the sector of modern building technology there has been a marked development in composite glass walls for continuous facades of houses and multistorey buildings, consisting of multiple glass panels supported by a facade frame joined to the load-bearing structure of the building.

The structural glass walls, as they are commonly called, have however aroused some doubts in the same designers as regards the constancy and duration over the years of the seal and the mechanical features of the sealers applied with this technology, which use silicone materials to bond and support the same glass walls.

It is known, in fact, that structural facades, in their original form, do not envisage either supports or particular securing of the glass walls to the facade frame, but only the bonding of the same with appropriate sealers in structural silicone. Moreover, some problems as regards the regulations and safety in the case of fire still remain to be solved for these types of structural bonding agents. At present, to deal with this problem, a device has been produced which is capable of guaranteeing a safer and more long lasting support over time for the structural facade glass walls. This consists of a bracket, generally in metal, in the shape of a "Z"; one arm is inserted inside a recessing made directly in the glass wall and the other arm is fixed to the riser of the aluminium structural framework by means of a securing screw. The brackets are normally fitted in the workshop, and to achieve a correct positioning of the glass walls and thus the bracket in the sealing operation, during erection, an appropriate silicone seal is foreseen which will be subsequently buried inside the recessing made in the glass wall, between the latter and the arm of the bracket inserted in it. The problem which most commonly occurs with this kind of solution is given by the fact that the seal envisaged between the bracket arm and the recessing in the glass is unable to absorb all the tolerances, whether these are made in the workshop or during erection on the site. This may lead to the breaking of the glass and therefore is a significant drawback to the use of this accessory which may prevent its use in practice.

The aim of this invention is, therefore, that of eliminated this problem. The invention, as described in the claims, resolves the problem of providing a mechanical support which is capable of absorbing tolerances encountered in the workshop and during erection of the structural glass walls.

The invention consists of a bracket, of the type described above, which can be connected, directly or indirectly, to the structural framework by the

interposition of securing devices with adjustment of its relative position with respect to the same structural framework.

The main advantage obtained with the present invention consists essentially in the fact that, during the erection of the structural glass wall, the distance of the same glass wall from the structural framework can be adjusted thus avoiding any danger of breaking. It is also possible to allow for self-adjustment of the glass wall, for example following settling after erection.

The invention is described in greater detail below with the aid of drawings which illustrate a form produced as a pure example and not limiting in any way.

Figure 1 shows a cross-section with some enlarged elements of the device subject of this invention.

Figure 2 shows a side view of the said device.

Figure 3 shows a detail of an alternative form of the said device.

In conformity with the present invention, the device for the adjustable mechanical support of continuous glass facades in houses and multistorey buildings is of the type consisting of a metal bracket 1 with a terminal tab 2 fitted, together with its covering seal 3, inside an appropriate recessing 4 in the sheet of glass 5 itself.

The bracket 1 can be connected to the structural framework 10 by the interposition of securing devices 30 with adjustment of its relative position with respect to the structural framework 10.

The bracket 1 has a lengthwise slot 6 and the said adjustable securing devices 30 consist of screw devices 7 which pass through the said bracket 1 in correspondance with the lengthwise slot 6 and can be engaged with a first element of the support 8, which in turn can be firmly joined to the structural framework 10 either directly or indirectly, for example, by means of a relative metal frame 12 supporting the glass forming, together with the latter, the so-called curtain wall module.

The said securing and adjusting devices 30 should preferably include a second element or guide 9 in a thermal insulating plastic material, for example nylon, placed between the bracket 1 and the supporting element 8. The guide 9 is equipped with a sliding recessing 9a allowing the bracket 1 to be moved towards and away from the structural framework 10, in the direction of the arrow f in figure 1.

In other words the securing and adjustment devices 30 consist of, in orderly sequence, as seen in figure 1:

the supporting element 8; the guide 9, arranged with one side in contact with element 8 and equipped on the opposite side with the sliding recessing 9a for the said bracket 1; the screw devices 7, consisting of a screw element 7, with a threaded pin 77, which can be screwed into the said element 8 and passing

through the bracket 1, as well as the guide 9. The said screw element 7 is fitted with a spring washer 7b to guarantee the firm securing of the plate 1, after the fitting of a washer 7c.

The functioning of the device can be summarized in the following operations: once the structural facade has been assembled and before the screw element 7 is screwed tightly to the plate 1, the distance between the latter and the structural framework 10 is adjusted by sliding the plate 1, engaged freely with the shaft 77 of the screw element 7, along the recessing 9a of the guide 9; when the desired adjustment is obtained, tighten the screw element 7 against the plate 1 thus ensuring that the glass itself is securely locked in the desired position.

An effective variation of the invention is illustrated in fig.3. In this case, the screw element 7 includes a counterpart 13 designed to determine the maximum engagement of the shaft 77 in the supporting element 8, so that the tightening of the screw element 7 involves the holding in position of the plate 1 and the entire device, leaving however the plate 1 free to slide in the direction of the arrow f in figure 1.

In particular, the counterpart 13 is a cylindrical enlargement 13a of the shaft 77 and designed to counter the supporting element 8 after a certain engagement of the same shaft, thus permitting the screw element 7 to hold, but to leave the plate 1 free to slide, for example to follow settling automatically after the erection of the glass walls 5.

The invention thus conceived can be modified and varied in numerous ways, all falling within the sphere of the invention. Moreover, all the parts can be replaced by technically equivalent elements.

## Claims

1) Device for the adjustable mechanical support of continuous glass facades of houses and multistorey buildings, of the type consisting of a metal bracket (1) equipped at one end with a terminal tab (2) lodged, together with its covering seal (3), inside appropriate recessing (4) in the sheet of glass (5) itself, **wherein** said bracket (1) can be connected to the structural framework (10) by the interposition of securing devices (30) with adjustment of its relative position with respect to the structural framework (10).

2) Device as in claim 1, **wherein** the said bracket (1) is equipped with a lengthwise slot (6) and the said adjustable securing devices (30) consisting of screw devices (7) passing through the said bracket (1) in correspondance with the lengthwise slot (6) and engaged in a supporting element (8) which can be firmly joined to the structural framework (10).

3) Device as in claim 2, **wherein** the said adjustable securing devices (30) also consist of a guide (9) in a thermal insulating plastic material, placed between the said bracket (1) and recessing (9a) for sliding the latter towards

and away from the structural framework (10) for a maximum distance determined by the length of the said longitudinal slot (6).

4) Device as in claim 2, **wherein** said screw devices (7) include a counterpart (13) designed to determine their maximum engagement in the said supporting element (8), in order to hold the said bracket 1, leaving it however free to slide towards and away from the said structural framework (10), even after the maximum tightening of the same screw devices (7).

5) Device as in claim 1, **wherein** the said means of securing with adjustment (30) consist of, in orderly sequence:

- a first supporting element (8) which can be firmly joined to the structural framework (10);
- a guide (9), the thermal insulating plastic material, with one side fixed against the supporting element (8) and the opposite side equipped with a sliding recessing (9a) for the same bracket (1);
- a screw element (7) with a threaded pin (77), which can be screwed into the supporting element (8) and passing through both the guide (9) and the bracket (1), the latter having a lengthwise slot (6) designed to allow the sliding and therefore the adjustment of the position of the said bracket (1).

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FIG 1

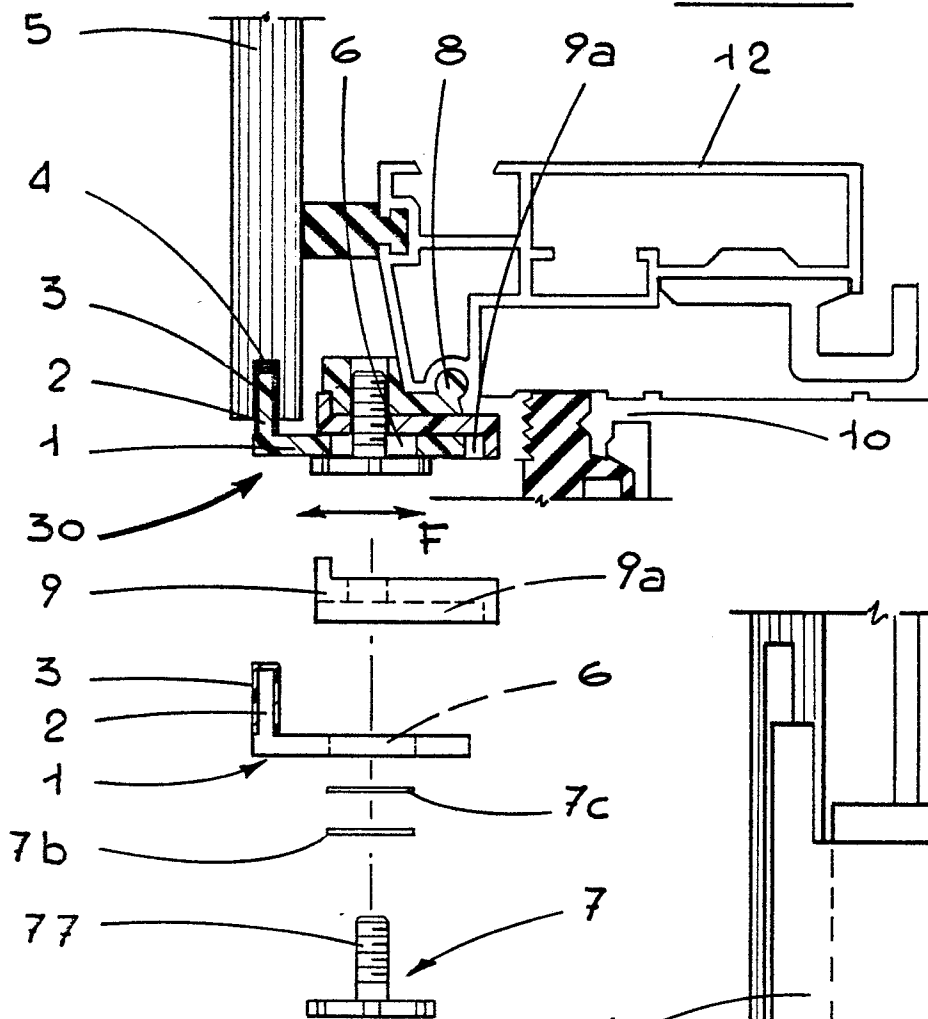


FIG 3

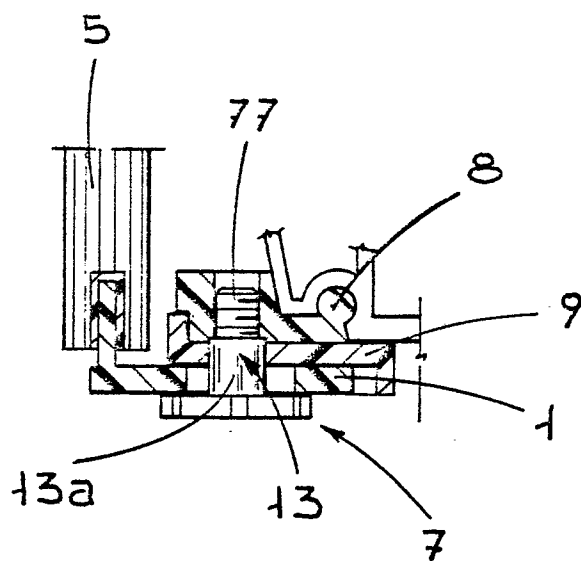
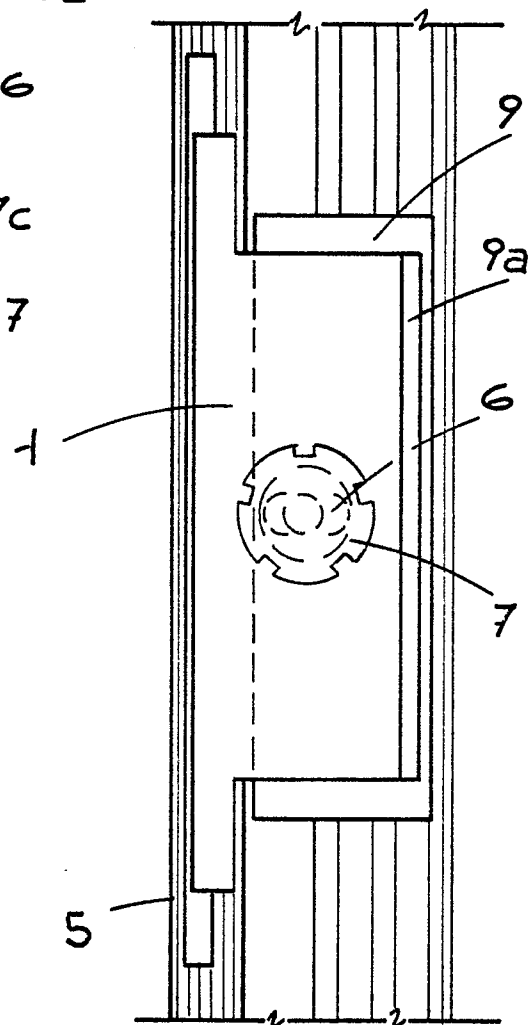


FIG 2





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.5)
Y	DE-U-8 716 220 (METALLBAU KOLLER AG) * Page 9, paragraphs 3-4; page 11, paragraph 1; claim 3; figures 1,4,5 * ---	1-5	E 06 B 3/54 E 04 B 2/92
Y	GB-A-2 196 047 (ELTREVA AG) * Page 1, lines 31-57,72-83; page 2, lines 6-43; figure 1 * ---	1	
Y	GB-A-2 139 264 (YOSHIDA KOGYO K.K.) * Page 1, lines 48-63,110-124; figures 4,5 * -----	2-5	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E 06 B E 04 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 06-12-1989	Examiner KAPPOS A.
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