



(11) Publication number : **0 617 189 A1**

(12) **EUROPEAN PATENT APPLICATION**

(21) Application number : **94830119.7**

(51) Int. Cl.⁵ : **E06B 3/30**

(22) Date of filing : **18.03.94**

(30) Priority : **23.03.93 IT RM930054 U**

(43) Date of publication of application :
28.09.94 Bulletin 94/39

(84) Designated Contracting States :
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC
NL PT SE**

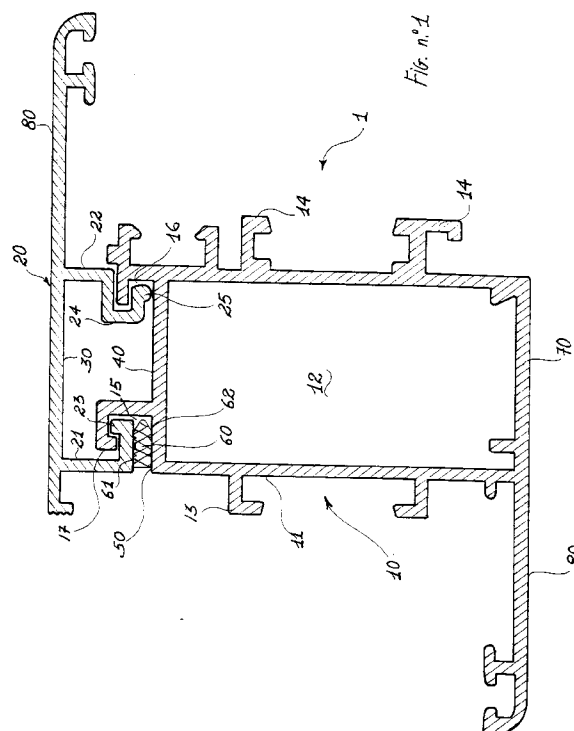
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(54) **A two-part assembly for metal frames.**

(57) The invention comprises a bar assembly for use in frames, constituted by two rigidly associated section parts, comprising a first rectangular-section part (10), destined to be in an internal environment, constituting the basic body (11) of the section, and a second part (20), destined to be in an external environment, being a closure and completion element of the exterior form of the assembly.



The invention comprises an assembly constituted by two rigidly associated section bars, wherein one rectangular-section part, destined to be in an internal environment, provides the basic body of the section and defines a closed chamber on its longer sides, externally of which are protuberances and projections functioning as connectors with other parts, as well as with gaskets or anchoring and manoeuvring accessories of the frame, and a second part, destined to be in an external environment, being a closure and completion element of the exterior form of the assembly.

The field of metal frames, in particular aluminium frames, comprises numerous series of differently-structured and conformed sections relating to frames of various types and with various functions.

One frequent problem in frame manufacture consists in the necessity of having to use different colours for the inside of the frame and for the outside of the frame.

This necessity derives from civic norms insisting that certain colours be used externally, especially on the outsides of buildings of historic or architectural value, whereas a more modern internal decor might require other tones.

For example, where wood or wood-imitating colours must be used, the aluminium or like frames are coated in those colours, while the same colours inside the building may not be at all to the taste of the user,

Aluminium sections, as is known, are coloured by means of anodization or by directly painting the bars destined to be cut and mounted in the construction of the frame. It is almost impossible, or at least prohibitively expensive if not technically impossible, to take into serious consideration a solution where the surfaces destined for the outside and the inside of bars are in different colours.

One possible solution, however, offered by section bars manufactured in such a way that there are two parts, a base destined to face the inside, and a second part facing the outside environment.

The second part is shaped such as to close and complete the first part, the parts being coupled by an interposition of synthetic wedges preventing them from actually touching each other.

Functionally this kind of distancing is directed (and often combined with double-glazing) at limiting heat transfer through the entire frame: it leads, however, to considerable constructional complexity, with consequent high costs. Dual colour frames can be obtained with the above series of sectioned parts, obviously by choosing different colours for the two parts, but to apply the above technique simply in order to have dual-coloured frames would be wasteful and expensive.

A simpler and cheaper solution, then, is required, and without the need to interpose elements in different or like materials between the parts in order to as-

sociate them rigidly.

The technical problem lies in the need to design a direct connection and coupling system between the parts which is rapid and easy to carry out, and which offers optimum stability and reliability over a long period of time, combined with low cost and simplicity of the extruded parts.

The principal aim of the present invention is to obviate the above-mentioned drawbacks by providing a connecting and engaging system which is rigid and stable, even when subjected to considerable accidental impacts over a long period of time, for two-part sections, one of which parts will face the outside environment and the other of which will face the inside.

The invention, as it is characterised in the claims that follow, solves the above-defined problem by providing an assembly constituted by two rigidly associated section parts wherein a second part is connected to a first part by means for coupling comprising, on the said second part, two longitudinal L-shaped wings projecting from a same side of said second part but being opposite in direction and of different heights; the shorter wing terminating in a hook turned back towards a surface of the side of the second part, the taller wing, after an initial right-angled bend directed towards the shorter wing, turning back in a squared C-shaped tract in an opposite direction to the initial bend, terminating in a semicircular projection facing away from the side of the second part; and comprising, on the first part, two roughly C-shaped seats developing in a longitudinal direction on a smaller side of the first part, a first seat facing parallel to said smaller side of the first part and terminating in a hook projection turned back towards said smaller side, and a second seat facing in a same direction as the first seat, being located at an opposite end of the smaller side to the first seat; the second seat engaging the squared C-shape tract of the taller wing by pressure of the semicircular projection against a surface of the smaller side following a partial rotation of the second part with respect to the first part; said rotation also determining an insertion of the shorter wing in the first seat and a reciprocal hooking-up of the equal and opposite hook-projections of the first wing and first part, and defining a longitudinal throat between the shorter wing and the surface of the smaller; a longitudinal insert being pressure-inserted in the longitudinal throat and determining a rigid fixing of the shorter wing in the first seat and the taller wing in the second seat.

Further characteristics and advantages of the present invention will better emerge from the detailed description that follows, of an embodiment of the invention. Illustrated in the form of a non-limiting example in the accompanying drawings, in which:

- figure 1 shows a section view of two metal section parts, associated according to the invention.

With reference to the figure, 1 denotes a section-

bar assembly for realizing frames, constituted by two rigidly-associated parts.

In particular, 10 denotes a first part of the assembly, destined for internal environments, constituting the base 11 of the bar. The first part 10 has a rectangular section and internally defines a closed chamber 12. Engagement projections 13 and protruberances 14 are located on the longer external sides of the closed chamber 12, which grip and hook other parts or gaskets or other anchoring or manoeuvring accessories of the frame.

In figure 1, 20 denotes a second part of the assembly, destined for external environments, being also a closure and completion element for the exterior section of the section bar assembly.

It has basically a flat section.

Both parts, 10 and 20, exhibit means for reciprocal connection. In particular, the connection means of part 20 are constituted by two wings 21 and 22, which project longitudinally from a same side 30 of the part 20. The wings 21 and 22 are both L-shaped in section, but are of different heights and face in opposite directions. Wing 21 is shorter in height than wing 22, and terminates in a hook projection 23 facing towards the surface of the side 30. Wing 22 has a C-shaped tract 24 that turns back on itself, and terminates in a semicircular projection turning back in an opposite direction to the side 30.

15 and 16 denote a pair of C-shaped longitudinal seats modelled on a smaller side 40 of the part 10. A first seat 15 faces parallel to the smaller side of part 10, and is made in proximity of an end of the smaller side 40, finishing in a hook 17 turned towards the smaller side 40. The second seat 16 faces in a same direction as the first seat 15 and is realised at the opposite end of the same smaller side 40.

The figure shows how the second seat 16 engages the tract 24 of the taller wing 22, with the semicircular projection 25 pressure-contacting against the surface of the smaller side 40, by partial rotation of the second part 20.

Consequently the shorter wing 21 inserts in the first seat 15 and the hooks 17 and 23 engage.

As has already been mentioned, the difference in height between wings 21 and 22 leads to a creation of a longitudinal throat 50 between the shorter wing 21 and the surface of the smaller side 40. 60 denotes a longitudinal insert which is then press-fitted in the longitudinal throat 50 to determine a rigid fixture of the shorter wing 21 in the first seat 15 and the taller wing 22 in the second seat 16 by counterpressure of the two parts of the assembly on the surfaces of the longitudinal throat 50.

The longitudinal insert 60 has a cuneiform section and the respective two surfaces 61 and 62, which exert an opposite action on the opposite surfaces of the longitudinal throat 50, have a sawtoothed conformation to aid friction against the insert 60.

Advantageously both the second part 20 and the first part 10 are provided at their sides 30 and smaller side 70 opposite to the smaller side 40, at one or both of their respective ends, with flat wings 80 for achieving various shaped parts, conventionally called T-shapes, double T-shapes or Z shapes, or suchlike, which constitute a complete and articulated series of shaped parts for making frames of various kinds.

It is obvious from the description that one technical advantage of the section bar assembly 1 consists in its capacity to resist any external action applied on it, thus guaranteeing absolutely stable association between the two parts 10 and 20. If the insert 60 should accidentally fall out, the detachment between part 20 and part 10 is obtainable only by following at least two different and contrasting partial rotation manoeuvres, which is highly unlikely in practice.

Claims

1. A metal assembly for making section bars for frames, comprising a first rectangular-section part (10), destined to be in an internal environment, provides the basic body (11) of the section and defines a closed chamber (12) on its longer sides, externally of which are protuberances (13) and projections (14) functioning as connectors with other parts, as well as with gaskets or anchoring and manoeuvring accessories of the frame, and a second, flat, part (20), destined to be in an external environment, being a closure and completion element of the exterior form of the assembly characterised in that the second part (20) is connected to the first part (10) by means for coupling comprising, on the said second part (20), two longitudinal L-shaped wings (21, 22) projecting from a same side (30) of said second part (20) but facing opposite directions and being of different heights; a shorter wing (21) terminating in a hook (23) turned back towards a surface of the side (30) of the second part (20), a taller wing (22), after an initial right-angled bend directed towards the shorter wing (21), turning back in a squared C-shaped tract (24) in an opposite direction to the initial bend, terminating in a semicircular projection (25) facing away from the side (30) of the second part (20); and also comprising, on the first part (10), two roughly C-shaped seats (15, 16), developing in a longitudinal direction on a smaller side (40) of the first part (10), a first seat (15) facing in a parallel direction to a development direction of said smaller side (40) of the first part (10) and terminating in a hook projection (17) turned back towards said smaller side (40); and a second seat (16) facing in a same direction as the first seat

(15), being located at an opposite end of the smaller side (40) to the first seat (15); the second seat (16) engaging the squared C-shape tract (24) of the taller wing (22) by pressure of the semicircular projection (25) against a surface of the smaller side (40) following a partial rotation of the second part (20) with respect to the first part (10); said rotation also determining an insertion of the shorter wing (21) in the first seat (15) and a reciprocal hooking-up of the hook-projections (17, 23) of the shorter wing (21) and first seat (15), and defining a longitudinal throat (50) between the shorter wing (21) and an external surface of the smaller side (40); a longitudinal insert (60) being pressure-inserted in the longitudinal throat (50) and determining a rigid fixing of the shorter wing (21) in the first seat (15) and the taller wing (22) in the second seat (16).

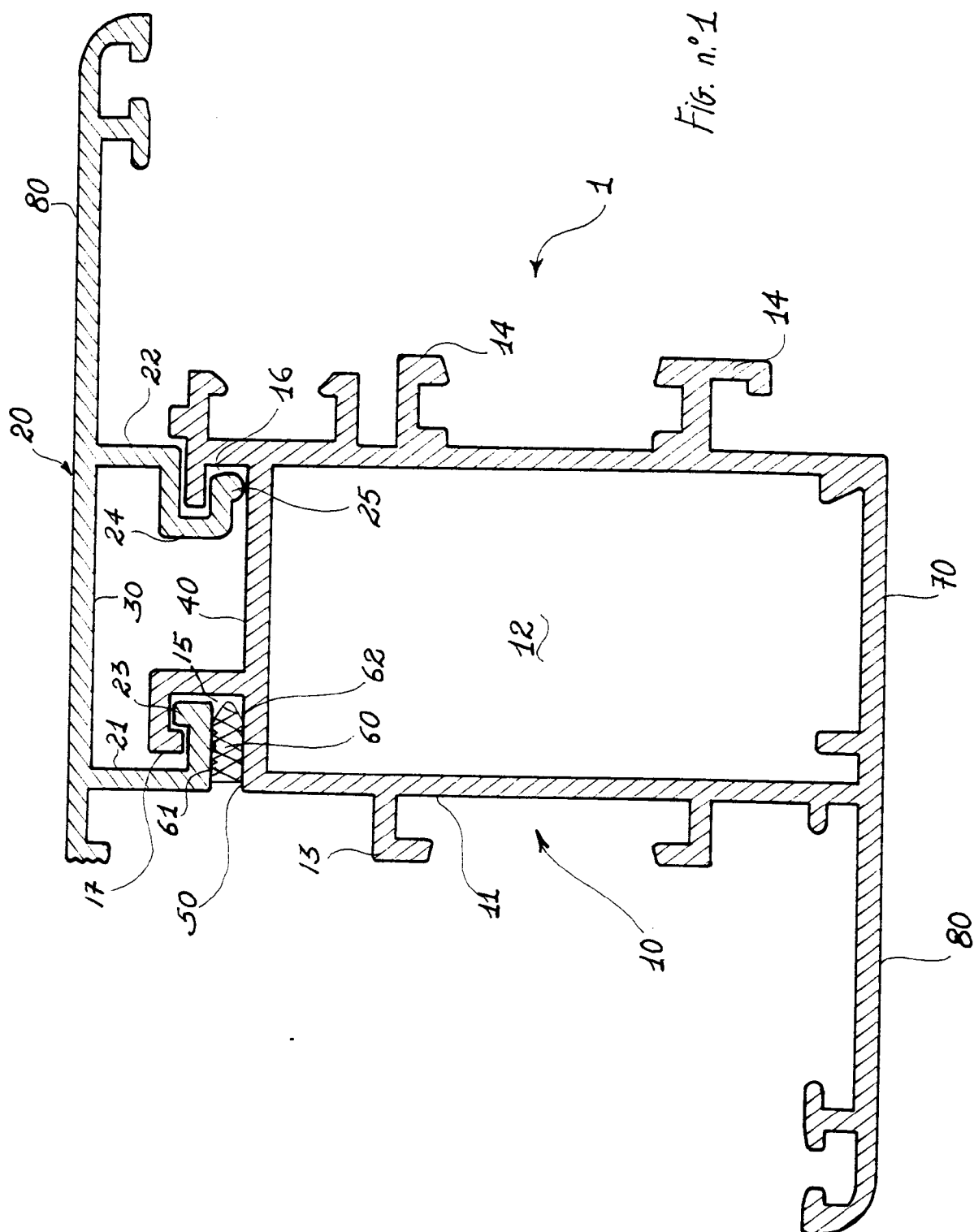
2. An assembly as in claim 1, characterised in that the longitudinal insert (60) has a cuneiform section.
3. An assembly as in claim 1, characterised in that the longitudinal insert (60) exhibits two opposite surfaces (61, 62) which grip by friction on sawtooth-conformed opposite surfaces of the longitudinal throat (50).
4. An assembly as in claim 1, characterised in that the second part (20) and the first part (10) of the assembly are provided at one or at both ends at the side (30) and the smaller side (70) opposite to the smaller side (40), with flat wings (80) for realising variously shaped profiles, such as T-shapes, double T shapes, Z shapes and the like, constituting a series of shapes which can be made into a frame.

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European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 94 83 0119

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)
X	DE-A-41 00 491 (O.C.M.A.) ---	1-4	E06B3/30
X	GB-A-2 051 193 (REDDIPLEX LTD.) ---	1-4	
A	AU-A-545 524 (HUNTER DOUGLAS LTD.) ---	1	
A	FR-A-2 075 291 (WIELAND-WERKE AG) -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			E06B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 June 1994	Examiner Roberts, P
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EPO FORM 1503 03.92 (P04C01)