(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 496 188 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
12.01.2005 Bulletin 2005/02

(51) Int Cl.[7]: **E06B 3/30**

(21) Application number: **04380143.0**

(22) Date of filing: **08.07.2004**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL HR LT LV MK

(30) Priority: **08.07.2003 ES 200301639 U**

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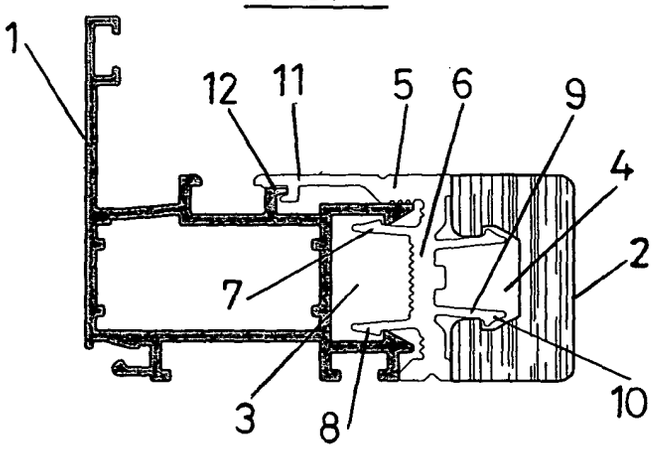
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(54) Composite frame for doors and windows

(57) A composite frame for doors and windows which, being able to be materialized both in a frame itself and in the frame or border taking part in the complementary leaf, and both if hinged leaves and sliding leaves are concerned, a frame in which a metal profile (1), preferably of aluminum, and a wood profile (2) take part. The two profiles (1, 2) have on their facing sides respective grooves (3, 4) of a choked opening, intended for simultaneously receiving respective pairs of elastically deformable lugs (7) finished off in respective anchors (8), projecting from the central and flat core (6) of a complementary and intermediate plastic profile, acting as a connection link between the aluminum profile (1) and the wood profile (2) by simple coupling under pressure.

FIG. 1



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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a frame, of those used indistinctively in doors and windows, and more specifically to a composite frame in which the external area thereof is of aluminum and the internal area is of wood, such that while the part of said frame corresponding to the interior of the living space, protected from the effects of elements, can be of a noble material such as wood, the external part is of a rust-proof material, such as aluminum.

[0002] The object of the invention is to improve the connection between the two basic materials constituents of the frame, both for facilitating the assembly thereof and for absorbing differential heights between the two said materials due to the cutting/manufacturing tolerances and to different thermal expansion coefficients existing between them.

[0003] The invention is applicable both to the frame itself of a door or window and to the frame taking part in the leaves of these elements, both if hinged leaves and sliding leaves are concerned.

BACKGROUND OF THE INVENTION

[0004] As is known, the classic wooden frames used in doors and windows were replaced by metalwork, generally of aluminum, for the purpose of preventing the maintenance problems which wood implies when it is permanently subjected to the effects of the elements, as is the case.

[0005] Obviously this lack of maintenance as well as practically indefinite useful life of the aluminum metalwork is achieved at the cost of a marked detriment in the aesthetic appearance of the closure.

[0006] In trying to prevent this problem, the use of composite frames is becoming widespread, with a metal part and another wooden part, such that once the closure is arranged, the entire internal surface thereof is of wood, with a noble appearance perfectly fitting in with the decoration of any living space, but with the metal exterior, i.e. of aluminum, such that the latter is the one supporting the effects of the elements, whereas the wood is duly protected inside the living space.

[0007] The fixing of wood to aluminum is carried out by means of adhesives, generally by means of resins, which are applied between the corresponding profiles in liquid or pasty phase, and which, after solidifying, constitute a physical point of connection between both profiles, assuring their relative immobility.

[0008] This solution has drawbacks mainly focused on the following aspects:

- After the independent processes of obtaining the aluminum profiles and wood profiles, it is necessary to carry out the assembly thereof in complex industrial installations, by means of the machinery necessary in the application of the resins, and by means of the tools necessary for maintaining said profiles duly interrelated until the final solidification of said resins occurs.
- Due to their own natures, wood and aluminum have markedly unequal thermal expansion coefficients, such that the thermal variations produce stresses in the resulting profile, which can even generate deformations therein.

DESCRIPTION OF THE INVENTION

[0009] The composite frame for doors and windows proposed by the invention solves the drawbacks set forth previously, in the different aspects discussed, in a completely satisfactory manner, furthermore providing a series of additional advantages which will become obvious throughout the present description.

[0010] More specifically, said frame focuses its features on the fact that it incorporates, as a fixing means between the metal profile and the wooden border, a complementary profile, specifically a plastic profile, which is fixed to both of said elements by means of simple pressure by way of a clip, which very considerably facilitates the assembly of the two basic profiles, that of aluminum and that of wood, the intermediate plastic profile furthermore acting as a means of breaking the thermal bridge of the frame as a whole, said intermediate profile furthermore being able to be provided with any accessory element for a better structuring and finishing of the frame as a whole.

[0011] More specifically, said intermediate plastic profile incorporates a flattened core of indefinite length, in accordance with the length of the aluminum and wood profiles, a pair of elastically deformable lugs finished off in respective locking anchors projecting from each one of the sides of the core, intended for locking inside the grooves of an operatively choked opening arranged both in the aluminum profile and in the wood profile.

[0012] The intermediate plastic profile is hidden between the two visible profiles, that of aluminum and that of wood, corresponding to the middle plane of the closure.

[0013] The system of coupling under pressure by means of said lugs between the three profiles of the frame allows for relative longitudinal displacement of the wood profile with regard to the aluminum profile, for example for absorbing different thermal expansions without the least force or stress arising among said profiles. The coupling system furthermore allows that the assembly among the profiles can be carried out manually or in a mechanized manner, in any case in a highly simple, quick and straightforward process, and without such coupling implying any limitation within the different practical examples such as hinged leaf or sliding leaf windows and doors.

DESCRIPTION OF THE DRAWINGS

[0014] To complement the description being made and for the purpose of helping to better understand the features of the invention, according to a preferred embodiment example thereof, a set of drawings is attached as an integral part of said description, in which the following has been shown in an illustrative and non-limiting character:

Figure 1 shows a detailed sectional view of a standard assembly, i.e. of a composite frame for doors and windows carried out according to the object of the present invention.

Figure 2 shows a sectional view similar to that of the previous figure, but corresponding to a typical joint between a frame and the complementary door or window leaf, both with the composite structure of the invention.

PREFERRED EMBODIMENT OF THE INVENTION

[0015] As has just been commented, Figure 1 shows a standard assembly for a frame in which an aluminum profile (1) and a wood profile (2) take part, forming said frame as a whole, such that aluminum (1) is positioned towards the exterior of the living space and the wood (2) towards the interior thereof.

[0016] According to the invention, the aluminum profile (1) incorporates a groove (3) of a choked opening, the same occurring with the wood profile (2) which also incorporates a groove (4) of a choked opening, an auxiliary plastic profile (5) being arranged between these profiles as a connection link between them, in which a flattened core (6), dimensionally adjusted with the facing sides of the profiles (1) and (2) is arranged, a core (6) from which a pair of elastically deformable lugs (7) projects, finished off in respective anchors (8) for coupling under pressure, by prior elastic deformation and subsequent recovery, to the choked opening of the groove (3) of the profile (1), while at the same time incorporating a second pair of lugs (9), likewise with anchors (10) on their free end, opposite to said pair of lugs (7), intended for coupling under pressure of the intermediate profile (5) to the groove (4) of a choked opening of the wood profile (2). The complementary profile (2) can thus be coupled by means of simple pressure to the aluminum profile (1), and in a similar manner the wood profile (2) can also be coupled under pressure to the assembly constituted of these two profiles.

[0017] To improve its stability, the intermediate profile (5) can have a flap (11), as observed in Figure 1, finished off in a coupling groove for coupling to a side lug (12) of the aluminum profile (1).

[0018] The structure described, shown in Figure 1 and corresponding to an outline of a frame, is repeated in Figure 2, wherein the outline of said frame appears duly coupled, the frame corresponding to the leaf of the door or window, in which an exterior aluminum profile (1') and interior wood profile (2') equally take part, provided with respective extensions (1") - (2"), the latter as an exterior stop for the glazing (13) and the former as a bead for fixing thereof, these profiles (1'-2') being likewise fixed to each other with the collaboration of an intermediate plastic profile (5'), identical or similar to the profile (5) taking part in the frame itself.

[0019] As has been previously commented, the assemblies shown in the figures are merely examples, such that the profiles (1) and (2) can vary in shape and dimensions with practically no limitation in this regard, as long as the existence of the grooves (3) and (4) of choked openings is kept constant to allow for the simultaneous coupling of both of the pairs of lugs (7) and (9) projecting from the core (6) of the intermediate plastic profile (5).

Claims

1. A composite frame for doors and windows which, being able to be materialized both in a frame itself and in the frame or border taking part in the complementary leaf, and both if hinged leaves or sliding leaves are concerned, a frame in which a metal profile (1), preferably of aluminum, and a wood profile (2) take part, **characterized in that** these two profiles (1, 2) have on their facing sides respective grooves (3, 4) of a choked opening intended for simultaneously receiving respective pairs of elastically deformable lugs (7) finished off in respective anchors (8), projecting from a central and flat core (6) of a complementary and intermediate plastic profile, acting as a connection link between the aluminum profile (1) and the wood profile (2) by simple coupling under pressure.

FIG. 1

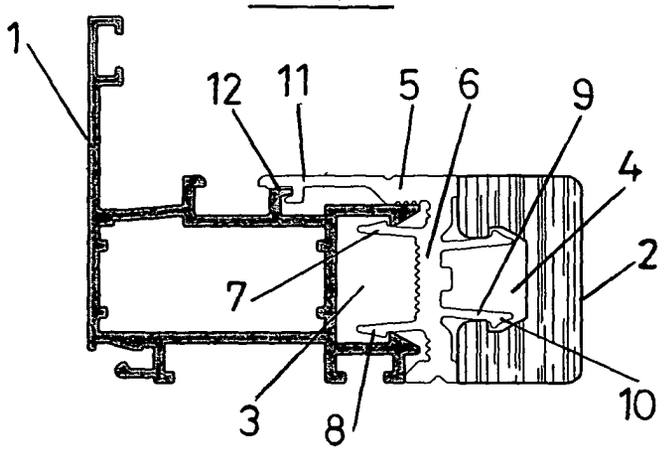


FIG. 2

