



Frame component made of folded board elements

The invention relates to a frame component for windows, doors, facade designs, with all other features of the preamble of patent claim 1.

Frame components, in particular windows consisting of folded board elements at which recesses for mounting armatures are created by sinking are known as prior art. By sinking the recesses the protection layer of the board elements, which form the frame component, is usually damaged. Therefore costly subsequent treatment measures have to be taken for restoring the insulation and protection after sinking.

The invention is based on the object of providing a type of frame component that does not require sinking for mounting armatures.

This object is achieved by the characterising part of patent claim 1. Advantageous embodiments of the invention are put into effect by the subclaims.

The desired recesses or steps for receiving the armatures can be provided without difficulty by the connection of individual angular elements created by folding, as proposed by the invention. The frame component produced in this way does not require sinking and therefore can be produced at lower cost and using less material. In addition to that the frame component's protection layer is unharmed and therefore it has a high resistance to weathering and corrosion.

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By fitting together modules of different appropriately formed angular elements the desired recesses or steps can be created in each of the necessary places. If necessary, the angular elements are assembled with additional individual elements. However, a subsequent treatment by chip producing methods for creating the recesses for the armatures is certainly no longer necessary.

As an advantage the frame component consists of two partial elements, each of which consists of angular elements (and individual elements, if necessary).

Here, relation could be made, for example, to a fixed window case and a window frame that can be opened and closed and includes a window pane.

As an advantage one of both partial elements, for example the window case, is completely made of a single angular element. Starting with a panel or board part, recesses are created in the appropriate places, which allows folding of the individual board or panel sections adjoining each other (in general rectangular). In such way the desired angular elements are created.

The panel used as basic material is covered with a protection layer (e.g. aluminium film, impregnating layer or lacquer layer) on one side or - if a special protection effect is to be created - on both sides. Of course, this layer is partially removed when producing the recesses. After folding the panel sections adjoining each other, the angular element produced thus has a protection layer covering all external sides and therefore is protected optimally from damaging influences like weather or corrosion. Should the end area of the angular element meet a side area of the angular element when folding the individual sections, either a blunt glued joint or an especially rigid or stable angular element design can be created, if the end area of the angular element projects into the side area of the other end of the angular element.



As an advantage the second element corresponding with the first partial element - for example, the window frame corresponding to the window case - consists of two angular elements and two individual elements. By modular combination of said elements recesses can be created in the desired places, in which the armatures can be adjusted and fixed without additional sinking processes.

By combination of several angular elements and individual elements or production of a completely closed angular element interior spaces are created in the individual partial elements of the frame component. As direct airing, for example, of the window pane held by the window frame is to be prevented, the frame component according to the present invention enables indirect airing from the exterior via the interior area of a partial element to the margin area of the window pane by using small airing tubes.

The individual angular elements or individual elements are broken through by the individual small airing tubes which, of course, also cause partial removal of the protection layer. For impermeable reception of the small airing tubes use of small airing tubes with a broader head area is recommended in order to neutralise damage to the surface layer caused by mounting the small tubes to the greatest possible extent.

The invention is explained in further detail by means of the examples of embodiments shown in the drawings, in which

Fig. 1 shows a panel element having a film layer on both sides and recesses for production of an angular element according to Fig. 2,

Fig. 2 shows a sectional view of a frame component according to the present invention made as window case or window frame,

Fig. 3 shows a second embodiment of the frame component according to Fig. 2 and

Fig. 4 a third embodiment of the frame component according to Fig. 2.

Figure 1 shows the angular element 7 according to Fig. 2, which is spread out as plane surface and contains the sections 7a-d and the recesses 11a and 11b. In addition to that the two-sided layer of angular element 7 is shown with a protection layer 10.

Now reference is made to Fig. 2. Here the partial element 1 in the form of a window case is completely formed by the angular element 6, which consists of the folded sections 6a-e. The angular element 6 is completely covered by a protection layer 10 (not shown) on its outer and inner areas 15. For stable support of section 6e same was included in a recess 11d of section 6b. At the sections 6d and 6e the armature 4 or parts of same are fixed. The partial element 2 corresponding to partial element 1 is formed as a window frame consisting of the angular elements 7 and 8 and the individual elements 9 and 9'. Angular element 7 comprises sections 7a-d, which are folded together and are completely covered by a protection layer (again not shown) as usual. Correspondingly the angular element comprises sections 8a-c. In addition to that the window handle 17 is shown.

By parallel location of individual element 9 and section 8c a stable construction of window frame 2 is created, which is further reinforced by inserting section 8c into recess 11a or by inserting individual element 9 into recesses 11b and 11c.

The window pane 3 is located between section 7a and individual element 9'.

Due to the arrangement of angular elements 7 and 8 shown in Fig. 2 and the individual

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element 9 a recess 12, into which armature 4 connected to the individual element 9 is adjusted exactly, is located between section 7d and section 8b.

As described creation of places for fixing the armatures 4, for example by sinking, is no longer necessary.

In contrast to Fig. 2, Fig. 3 shows a changed embodiment of partial element 2 (without showing handle 17). Here angular element 7 is provided with an additional section 7e, which is rectangularly connected to section 7d - and, for example also by protection layer 10 (for example a film layer) or an auxiliary connection both of which are not shown. For stabilising the whole design individual element 9", which is shorter than individual element 9 in Fig. 2, was included between section 7e and section 7b.

Therefore the embodiment according to Fig. 3 comprises an especially high number of sections of angular elements 7 and 8 folded towards each other as far as the form of the window frame is concerned.

Fig. 4 shows (without showing handle 17 and armature 4) small airing tubes 13 and 13' inserted for airing window pane 3. As was hinted by the arrows 16, this enables a change of air between window pane 3 and the ambient air via the inward areas 15' and 15".

For receiving the small airing tubes 13 or 13' the used components - in the present case individual element 9 and section 8c - have to be broken through, of course, thus at first damaging the protection layer (which again is not shown). In order to get a completely closed and protected frame component design in the end, use of small airing tubes 13 or 13' having broader head areas 14 for covering the bores of the small airing tubes 13, 13' is recommended.

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Patent Claims

1. Frame component, in particular made of wood, recycled board material or the like for windows, doors, facade designs and the like by using folded board elements that are covered by a protection layer at least on one side,

characterised in that

several angular elements (6, 7, 8) created by folding are intended, which are connected to each other such that at least one recess (12) or step is created for receiving the armatures (4).

2. Frame component according to claim 1,

characterised in that

at least one individual element (9) is intended, which is connected to angular elements (6, 7, 8).

3. Frame component according to one of the preceding claims,

characterised in that

the frame component comprises a first partial element (1), in particular a window case and a second partial element (2), in particular a window frame.

4. Frame component according to claim 3,

characterised in that

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the first partial element (1) comprises an angular element (6) having folded sections (6a-e), whereas sections (6a-e) are substantially connected to each other at a right angle.

5. Frame component according to claim 3 or 4,

characterised in that

section (6e) projects into recess (11d) of section (6b).

6. Frame component according to one of the claims 3 to 5,

characterised in that

the second partial element (2) comprises an angular element (7), a further angular element (8) and individual elements (9, 9'), whereas each of the angular elements (7) and (8) is folded in a L-shape and both legs of angular element (7) consist of the folded sections (7a, 7b) or (7c, 7d) and both legs of the angular element (8) consist of the folded sections (8a, 8b) or (8c), whereas the two angular elements (7) and (8) are connected via a leg of angular element (8) and individual element (9), which is mounted in parallel to said leg.

7. Frame component according to claim 6,

characterised in that

section (8c) of angular element (8) projects into a recess (11a) of section (7b) of angular element (7) and individual element (9) is inserted into recesses (11b) or (11c) of angular element (7) or angular element (8).

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8. Frame component according to claim 6 or 7,

characterised in that

the individual element (9') is fixed to the outside of section (8c) and in the case of partial element (2) being a window frame, window pane (3) is contained between individual element (9') and a section (7a) of angular element (7).

9. Frame component according to one of the claims 6 - 8,

characterised in that

a recess (12) is located between the sections (7d) and the side area of section (8b).

10. Frame component according to claim 9,

characterised in that

the area of recess (12) contains an armature (4).

11. Frame component according to claim 9 or 10,

characterised in that

the armature (4) is fixed to individual element (9).

12. Frame component according to one of the preceding claims,

characterised in that

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the angular element (7) comprises sections (7a-7e) and the end area of section (7e) projects into recess (11c) of section (8b) of angular element (8).

13. Frame component according to claim 12,

characterised in that

an individual element (9'') is inserted between section (7e) and recess (11b) of section (7b) of angular element (7).

14. Frame component according to one of the preceding claims,

characterised in that

armatures (4) are mounted in recesses (12) formed by angular elements (6, 7, 8) and individual elements (9, 9', 9'').

15. Frame component according to one of the preceding claims,

characterised in that

the angular elements (6, 7, 8) and individual elements (9, 9', 9'') have a protection layer on both sides.

16. Frame component according to one of the preceding claims,

characterised in that

partial element (1) and/or partial element (2) have internal areas (15).

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17. Frame component according to one of the preceding claims,

characterised in that

small airing tubes (13, 13') for airing window pane (3) are mounted in partial element (2), which in particular is formed as a window frame,

18. Frame component according to claim 17,

characterised in that

the small airing tubes (13, 13') have broader head areas (14) in the end area.

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