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54 **A window frame panel assembly for a roof window.**

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Description

The invention relates to a window frame panel assembly for arrangement in an inclined roof surface, comprising opposed parallel side plates for arrangement in vertical planes at right angles to said roof surface and top and bottom members formed of plate material for arrangement between the side plates at right angles to said vertical planes.

When mounting roof windows in inclined roof surfaces, it has conventionally been necessary to adapt the frame or panel assembly individually by handcraft production dependent on the dimensions of the actual roof construction.

From DE-U1-78 09 898 a window frame panel assembly of the above mentioned kind is known in which side plates and top and bottom member are provided in the form of prefabricated parts of a kit which can be assembled in a relatively simple manner just before installation. The top and bottom member are formed with pre-drilled screw-receiving bores and each side plate with a number of series of markings for holes matching said bores and each of said series corresponding to a specific roof inclination, whereby the upper member will be positioned substantially horizontally in the mounted position.

However, in order to adapt this prior art assembly to the thickness of the roof construction it is necessary to use a special intermediate frame between the assembly and the frame structure of the window itself. Dependent on the roof thickness and the roof inclination the width dimension of this intermediate frame will vary and it will thus be necessary either to allow selection between a rather great number of intermediate frame parts or to make the intermediate frame by in situ craftsman's production thereby reducing the inherent advantages of a kit consisting of prefabricated parts.

It is the object of the invention to provide a panel frame assembly, which is suitable for prefabrication and may be supplied with side plates and top and bottom members in a kit, which can easily be assembled in situ and can be quickly mounted by offering a very simple possibility for adaption to usual roof thicknesses and inclinations without using an additional intermediate frame.

According to the invention a window frame panel assembly of the above-mentioned kind is provided, comprising opposed parallel side plates for arrangement in vertical planes at right angles to said roof surface and top and bottom members formed of plate material for arrangement between the side plates at right angles to said vertical planes, each side plate having parallel first and second longitudinal side edges to be positioned outwardly and inwardly, respectively, in the moun-

ted position of the frame assembly in said roof surface and opposite upper and lower edges each comprising a first part at right angles to said first side edge and on the remainder of the width of the side plate a second part inclined with respect to said second side edge, said second parts diverging against said second side edge, so that said second part at the upper end edge forms an angle therewith corresponding to the inclination of said roof surface, said top and bottom members being formed as curved or bent plate profiles having cross-sectional shapes corresponding to the upper and lower end edges, respectively, of the side plates and comprising first and second parts to be positioned outwardly and inwardly with respect to the roof surface in the mounted position and forming an angle with each other depending on the roof inclination, means being provided at said side plates for mounting said top and bottom members in positions in which said first parts are substantially parallel to each other at right angles to said first side edge of each side plate, whereas said second parts diverge against said second side edge of the side plates at an angle of substantially 90° with each other to extend substantially horizontally and vertically in the mounted position for said top and bottom members, respectively.

With this design, adaption to the actual roof thickness may be performed after assembly of the side plates and top and bottom members of the assembly to a mainly rectangular frame by cutting-off from said plates and members from the side to be positioned outwardly when subsequently mounting the assembly within the part of the width of the frame assembly, in which the surfaces of the top and bottom members facing each other are parallel.

In addition the particular cross-sectional shape of the top and bottom members provide for an optimum light area and the aesthetically attractive effect that the underside of the internal part of the top member facing the roof room in question extends substantially horizontal, whereas the internal part of the bottom member extends substantially vertical.

In a symmetric design of the side plates, by which said diverging parts of the upper and lower end edges of each side plate form equal angles with said second side edge, the frame panel assembly according to the invention will be suitable for roof inclinations between approximately 40° and 50°.

As another possibility, the side plates may be designed asymmetrically in that said diverging part of the upper and lower end edges of each side plate form angles of different size with said second side edge. Thereby, the same design of the frame panel assembly may be used for two mutually

complementary roof inclinations, such as 30° and 60°.

In the accompanying drawings,

Fig. 1 shows an embodiment of a window frame panel assembly according to the invention prior to assembling;

Fig. 2 illustrates adaptation of the frame panel assembly to an actual roof thickness; and

Fig. 3 shows another embodiment of the side plates of the frame panel assembly.

As shown in Fig. 1, a frame panel assembly according to the invention comprises two opposed parallel side plates 1 and 2 for arrangement in vertical planes at right angles to an inclined roof surface, as well as a top member 3 and a bottom member 4. In order to obtain an aesthetically attractive effect, these panel members are preferably made of wood plate.

Each of the side plates 1 and 2 has a first longitudinal side edge 1a and a second longitudinal side edge 1b, which are parallel and adapted for arrangement outwardly and inwardly, respectively, when mounting the panel assembly in a roof surface, as well as opposed end edges 1c and 1d. At the longitudinal side edge 1a, the end edges 1c and 1d are formed with first parts 5 and 6 extending at right angles to the longitudinal side edge 1a through, for instance, a portion of 1/3 to 1/2 of the total width of the side plate 1.

On the remainder of the width of the side plate 1, the end edges 1c and 1d have inclined parts 7 and 8, respectively, diverging against the other longitudinal side edge 1b and forming angles therewith corresponding to the inclination of the roof surface.

Corresponding to these contours of the end edges of the side plates, the top member 3 and the bottom member 4 are formed as curved or bent plate profiles, the cross-sectional shape of which comprises two parts as shown at 9 and 10, forming an angle with each other corresponding to the angle between the two parts of the opposed end edges of the side plates 1 and 2. The top member 3 and the bottom member 4 may, as desired, be formed either with sharp edges or with a more or less curved transition between the parts 9 and 10.

As apparent from Fig. 1, the frame panel assembly may be supplied with the side plates 1 and 2, the top member 3 and the bottom member 4 in a kit so as to allow assembling in situ of the parts. In order to facilitate assembling, the end portions of the side plates and the ends of the top and bottom members abutting thereagainst may be designed with pre-drilled bores, as shown at 11, for receiving screws 12.

In the mounting of the frame panel assembly, the side plates 1 and 2 and the top and bottom members 3 and 4 are initially assembled into a

mainly rectangular frame structure. As shown in Fig. 2, such a frame structure 13 may be adapted to the actual roof thickness by cutting-off from the side, at which the surfaces of the top and bottom members 3 and 4 facing each other, i.e. the parts 9, are substantially parallel. Subsequently, the frame structure 13 may be in a simple way inserted into a pre-formed window opening, since the members of the frame panel assembly are dimensioned according to usual standard sizes of roof windows. After mounting, the frame panel assembly is finished by affixing frame strips as shown at 14 in Fig. 1. Since the side plates 1 and 2 are designed so that the inclined parts 7 and 8 of their end edges 1c and 1d form an angle of substantially 90° with each other, a great light area towards the interior of the roof room will be obtained in the symmetrical embodiment shown in Fig. 1, in which the inclined parts 7 and 8 each form an angle of 45° with the inward longitudinal side edge 1b of the side plate. Moreover, at a usually occurring roof inclination between 46° and 50°, it is obtained that the internal part of the top member 3 will extend substantially horizontal, whereas the internal part 10 of the bottom member 4 will extend substantially vertical.

In the modified embodiment in Fig. 3, the side plate 15 is designed asymmetrically, so that the inclined parts 16 and 17 of the end edges 18 and 19 form angles of different size with the internal longitudinal side edge 20. Also in this embodiment, the angle between the inclined parts 16 and 17 is 90°.

With this design, the same frame panel assembly may be used for roofs having complementary inclinations by turning the side plates 15 upside down and interchanging the top and bottom members, which are not illustrated, but may be designed in the same way as in the embodiment shown in Fig. 1 as curved or bent plate profiles having a cross-sectional shape corresponding to the contours of the respective end edges 18 and 19.

The angles of different size between the parts 16 and 17, respectively, and the longitudinal side edge 20 are preferably in the ranges 20-45° and 45-70°, respectively, so that one angle may, for instance, be approximately 30° and the other angle approximately 60°, as illustrated.

Thus, also in this embodiment, the above mentioned orientation of the internal parts of the top and bottom members may be achieved.

Claims

1. A window frame panel assembly for arrangement in an inclined roof surface, comprising opposed parallel side plates (1, 2; 15) for arrangement in vertical planes at right angles to

said roof surface and top and bottom members (3, 4) formed of plate material for arrangement between the side plates (1, 2; 15) at right angles to said vertical planes, each side plate (1, 2; 15) having parallel first and second longitudinal side edges (1a, 1b; 20) to be positioned outwardly and inwardly, respectively, in the mounted position of the frame assembly in said roof surface and opposite upper and lower edges (1c, 1d; 18, 19) each comprising a first part (5, 6) at right angles to said first side edge (1a) and on the remainder of the width of the side plate (1, 2; 15) a second part (7, 8; 16, 17) inclined with respect to said second side edge (1b; 20), said second parts (7, 8; 16, 17) diverging against said second side edge (1b; 20), so that said second part at the upper end edge (1c; 18) forms an angle therewith corresponding to the inclination of said roof surface, said top and bottom members (3, 4) being formed as curved or bent plate profiles having cross-sectional shapes corresponding to the upper and lower end edges, respectively, of the side plates and comprising first and second parts (9, 10) to be positioned outwardly and inwardly with respect to the roof surface in the mounted position and forming an angle with each other depending on the roof inclination, means (11) being provided at said side plates (1, 2) for mounting said top and bottom members (3, 4) in positions in which said first parts (9) are substantially parallel to each other at right angles to said first side edge (1a) of each side plate (1, 2), whereas said second parts (10) diverge against said second side edge (1b) of the side plates (1, 2) at an angle of substantially 90° with each other to extend substantially horizontally and vertically in the mounted position for said top and bottom members (3, 4), respectively.

2. A window frame panel assembly as claimed in claim 1, characterized in that said diverging parts (7, 8) of the upper and lower end edges (1c, 1d) of each side plate (1, 2) form equal angles with said second side edge (1b).
3. A window frame panel assembly as claimed in claim 1, characterized in that said diverging parts (16, 17; 7, 8) of the upper and lower end edges (18, 19) of each side plate (15) form angle of different size with said second side edge (20).
4. A window frame panel assembly as claimed in claim 3, characterized in that said different angles are in the ranges 20-45° and 45-70°, respectively.

Revendications

1. Assemblage d'un panneau de châssis de fenêtre pour installation dans un toit incliné, comprenant des plaques latérales parallèles opposées (1, 2; 15) pour installation dans des plans verticaux perpendiculairement au toit, et des éléments supérieur et inférieur (3, 4) en matériau en plaque pour installation entre les plaques latérales (1, 2; 15) à angle droit desdits plans verticaux, chaque plaque latérale (1, 2; 15) ayant des premier et second bords longitudinaux parallèles (1a, 1b; 20) à placer respectivement vers l'extérieur et vers l'intérieur après installation de l'ensemble de châssis dans le toit, et des bords opposés supérieur et inférieur (1c, 1d; 18, 19) comprenant chacun une première partie (5, 6) à angle droit du premier bord latéral (1a) et, sur le reste de la largeur de la plaque latérale (1, 2; 15), une seconde partie (7, 8; 16, 17) inclinée par rapport audit second bord latéral (1b; 20), lesdites secondes parties (7, 8; 16, 17) divergeant vers ledit second bord latéral (1b; 20), d'une façon telle que ladite seconde partie, au bord extrême supérieur (1c; 18), fait un angle avec celui-ci qui correspond à l'inclinaison du toit, lesdits éléments supérieur et inférieur (3, 4) étant des plaques profilées de section incurvée ou pliée qui correspondent respectivement aux bords supérieur et inférieur des plaques latérales et comprenant des premières et secondes parties (9, 10) à placer vers l'extérieur et vers l'intérieur par rapport au toit dans la position installée et formant un angle l'une avec l'autre en fonction de l'inclinaison du toit, des moyens (11) étant prévus sur lesdites plaques latérales (1, 2) pour l'installation desdits éléments supérieurs et inférieurs (3, 4) dans des positions dans lesquelles lesdites premières parties (9) sont substantiellement parallèles les unes avec les autres avec des angles droits par rapport audit premier bord latéral (1a) de chaque plaque latérale (1, 2), tandis que lesdites secondes pièces (10) divergent vers ledit second bord latéral (1b) des plaques latérales (1, 2) sous un angle substantiellement de 90° l'une avec l'autre pour s'étendre substantiellement horizontalement et verticalement dans la position installée desdits éléments respectivement supérieur et inférieur (3, 4).
2. Assemblage d'un panneau de châssis de fenêtre selon la revendication 1, caractérisé en ce que lesdites parties divergentes (7, 8) des bords extrêmes supérieurs et inférieurs (1c, 1d) de chaque plaque latérale (1, 2) forment des angles égaux avec ledit second bord latéral (1b).

3. Assemblage d'un panneau de châssis de fenêtre selon la revendication 1, caractérisé en ce que lesdites parties divergeantes (16, 17; 7, 8) des bords extrêmes supérieurs et inférieurs (18, 19) de chaque plaque latérale (15) forment des angles différents avec ledit second bord latéral (20).
4. Assemblage d'un panneau de châssis de fenêtre selon la revendication 3, caractérisé en ce que lesdits angles différents sont dans la gamme de respectivement 20-45° et 45-70°.

Patentansprüche

1. Fensterrahmenbausatz zum Anbringen in einem geneigten Dach, umfassend gegenüberliegende parallele Seitenplatten (1, 2; 15) zum Anbringen in senkrechten Ebenen rechtwinklig zur Dachfläche und aus Plattenmaterial geformte Ober- und Unterteile (3, 4), die zwischen den Seitenplatten (1, 2; 15) rechtwinklig zu den senkrechten Ebenen angeordnet sind, wobei jede Seitenplatte (1, 2; 15) parallele erste und zweite längsverlaufende Seitenkanten (1a, 1b; 20) aufweist, die in der montierten Stellung des Rahmenbausatzes in der Dachfläche aussen bzw. innen angeglichen werden, und gegenüberliegende obere und untere Kanten (1c, 1d; 18, 19), die jede ein zur ersten Seitenkante (1a) rechtwinkliges erstes Teil (5, 6), und auf der übrigbleibenden Breite der Seitenplatte (1, 2; 15) ein mit Bezug auf die zweite Seitenkante (1b; 20) geneigtes zweites Teil (7, 8; 16, 17) umfassen, welche zweiten Teile (7, 8; 16, 17) in Richtung zur zweiten Seitenkante (1b; 20) auseinanderlaufen, so dass das zweite Teil an dem oberen Kantenende (1c; 17) mit der zweiten Seitenkante einen der Dachneigung entsprechenden Winkel bildet, und dass die Ober- und Unterteile (3, 4) als gekrümmte oder gebogene Plattenteile mit einer den oberen bzw. unteren Endkanten der Seitenplatten entsprechenden Querschnittsform ausgebildet sind und mit ersten und zweiten Teilen (9, 10), die mit Rücksicht auf die Dachfläche in der montierten Stellung des Rahmenbausatzes aussen und innen eingestellt werden und abhängig von der Dachneigung untereinander einen Winkel bilden, und dass auf den Seitenplatten (1, 2) Mittel (11) vorgesehen sind zum Montieren der Ober- und Unterteile (3, 4) in Stellungen, wo die ersten Teile (9) im wesentlichen parallel und rechtwinklig zu der ersten Seitenkante (1a) jeder Seitenplatte (1, 2) sind, während die zweiten Teile (10) in Richtung zu der zweiten Seitenkante (1b) der Seitenplatten (1, 2) bei einem Winkel

von annähernd 90° auseinanderlaufen und in der montierten Stellung der Oberteile und Unterteile (3, 4) im wesentlichen waagrecht bzw. senkrecht verlaufen.

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2. Fensterrahmenbausatz nach Anspruch 1, dadurch **gekennzeichnet**, dass die auseinanderlaufenden Teile (7, 8) der oberen und unteren Endkanten (1c, 1d) jeder Seitenplatte (1, 2) mit der zweiten Seitenkante (1b) gleich grosse Winkel bilden.
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3. Fensterrahmenbausatz nach Anspruch 1, dadurch **gekennzeichnet**, dass die auseinanderlaufenden Teile (16, 17; 7, 8) der oberen und unteren Endkanten (18, 19) jeder Seitenplatte (15) mit der zweiten Seitenkante (20) einen Winkel von unterschiedlicher Grösse bilden.
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4. Fensterrahmenbausatz nach Anspruch 3, dadurch **gekennzeichnet**, dass die unterschiedlichen Winkel im Bereich von 20-45° bzw. 45-70° liegen.
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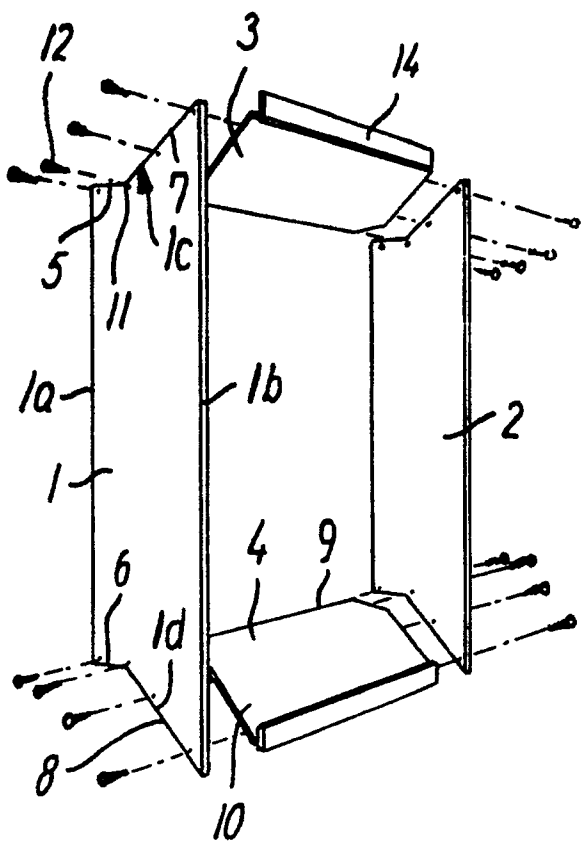


FIG. 1

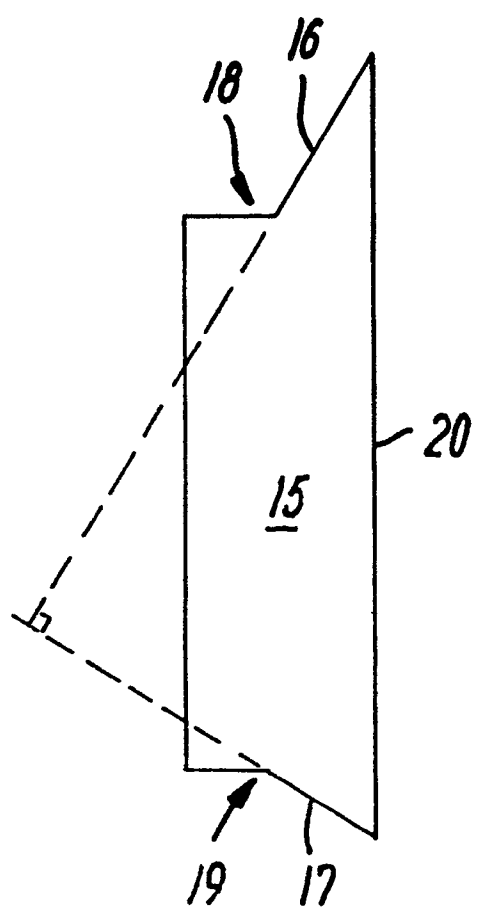


FIG. 3

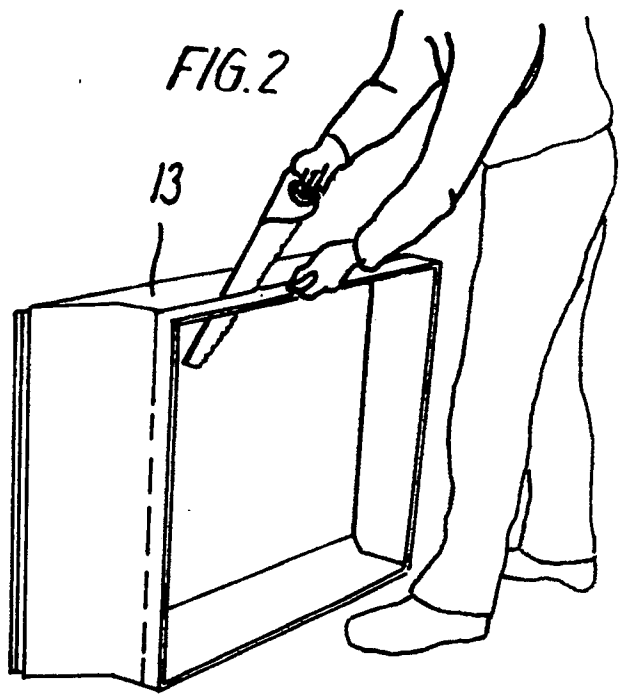


FIG. 2