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

(11) Publication number: **0 287 362 B1**

(12) # EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **17.06.92**

(51) Int. Cl.[5]: **E06B 1/06**, E04D 13/03, G01C 9/12

(21) Application number: **88303351.6**

(22) Date of filing: **14.04.88**

(54) **Window frame panel kit and an auxiliary device for producing a window frame.**

(30) Priority: **15.04.87 DK 1975/87**

(43) Date of publication of application:
19.10.88 Bulletin 88/42

(45) Publication of the grant of the patent:
17.06.92 Bulletin 92/25

(84) Designated Contracting States:
AT BE CH DE ES FR GB IT LI NL SE

(56) References cited:
DK-B- 149 655
US-A- 834 765
US-A- 885 076
US-A- 2 724 152
US-A- 3 363 369

(73) Proprietor: **V. KANN RASMUSSEN INDUSTRI A/S**
10 Tobaksvejen
DK-2860 Soborg(DK)

(72) Inventor: **Morck, Ole Phaff**
12 Harlosevej
DK-3320 Skaevinge(DK)
Inventor: **Bergman, Dennis**
20 Arent Hansensvej Smidstrup
DK-3250 Gilleleje(DK)

(74) Representative: **Tscherning, Christian et al**
c/o Internationalt Patent-Bureau Hoeje
Taastrup Boulevard 23
DK-2630 Taastrup(DK)

EP 0 287 362 B1

Description

This invention relates to a frame panel kit for a window installed in an inclined roof, comprising first and second plate members from which vertical side plates of the panel perpendicular to the roof surface are made and top and bottom members, to be arranged in the panel between opposing front surfaces of the side plates, each of said first and second plate members being provided on its rear side with two sets of marking lines extending in fan shape with preferably uniform angular separation, each marking line in one set extending at right angles to a marking line of the other set to provide a pair of marking lines securing substantial horizontal and vertical arrangement, respectively, of said top and bottom members between said side plates.

In order to avoid entirely manual handycraft production of frame panels in connection with the installation of windows in inclined roof surfaces a frame panel is known from EP-A-0141567 that may be supplied with side plates, top and bottom members in a building kit that can be easily assembled in situ and can be quickly mounted by allowing for adaptation to the actual roof thickness and inclination. It is prescribed for this known structure that adapting of the plate members of the kit in the transverse direction to an actual thickness of a sloping wall is to be performed by cutting-off from the outer edges of the plate members, which has the disadvantage of impeding a correct adaptation of the panel to the window main frame, e.g. by engagement with grooves therein. In order that said cutting-off may be effected, the end edges of the plate members constituting the side members are, on one hand, provided with a part close to the outer edge perpendicular to the window main frame and, on the other hand, with a bevelled part facing the inner edge and forming such an angle with the parallel outer and inner edges of the side member that the latter part of the end edge extends substantially horizontally and substantially vertically at the upper and lower end of the side member, respectively. With a view to make a given side member applicable for more than one roof inclination it has further been suggested that the bevelled parts perpendicular to each other of the end edges of a side member form different angles, e.g. 40° and 50° or 30° and 60°, with the outer edge and inner edge of said side member. Said design does not, however, provide for covering a greater range of roof inclinations, e.g. from 30° to 60° with one and the same shape of the side members.

The shape of the side members with end edges that are ready-made with bevelled parts extending at said angles entails, moreover, that undesired large deviations from the desired location of the top and bottom members in a horizontal and a vertical plane, resp., must be accepted for roof inclinations in the range between the angular magnitudes of the bevelled parts of the end edges.

The latter disadvantages have been eliminated by a design of the type mentioned above known from DE-U-78 09 898 according to which a comparatively correct positioning of the top and the bottom members may be obtained by means of said line markings on the side members. In this known design the kit is supplied with side, top and bottom members in ready cut sizes also in the transverse direction and it is prescribed that an intermediary frame must be inserted between the frame panel assembly itself and the window main frame, probably with the purpose of compensating for variations of the thickness of a sloping wall. In order to obtain an adaptation of the width of the horizontally placed top member in dependence on an actual roof inclination a bipartite design of the top member is further prescribed with a section of constant width positioned closest to the window main frame and an internal part of varying width dependent on the roof inclination and assembled therewith by means of a rib-groove connection so that said internal parts must be supplied in varying sizes to be adapted to different roof inclinations, and intermediary frames fitted to varying thicknesses of sloping walls must be supplied as well.

It is the object of the invention to provide a frame panel kit of the type mentioned by which it is possible, as distinct from said prior designs, by one and the same kit, i.e without changing the size and shape of the plate members forming part of the kit, to build up frame panels suited for any arbitrary roof inclination and any thickness of sloping walls within a considerable range, and a mainly horizontal top member and a mainly vertical bottom member are at the same time always obtained together with a good adaptation to the window main frame without making use of any intermediary frame.

This is obtained according to the invention in that said top and bottom members are formed from additional plate members which are each bent into an angular shape along a bending line parallel to and at a short distance from an outer edge of the member under bending angles of approximately 30° and 45°, respectively, said outer edges of the additional plate members as well as outer edges of the first and second plate members being ready-made to engage into grooves in the window main frame whereas the inner edges of the side plates and top and bottom members are formed by cutting away excessive parts of said first and second plate members and said additional plate members, each set of marking lines on each of said first and second plate members covering a range of 30° to 60° for the angle between the outer edge of the plate member and the respective marking lines of each set.

A building kit manufactured in this manner and comprising four plate members which for a given window are supplied with determined sizes and shapes provides for giving the frame panel a shape fitting in with an arbitrary roof inclination within a range, e.g. from approximately 27.5° to approximately 62.5° and with a maximum deviation from the ideal horizontal and vertical orientation of the top and bottom members of ± 2.5°. A suitable adaptation to an actual thickness of a sloping wall may at the same time be obtained and thus also a compensation for minor variations thereof, e.g. between the two vertical lateral surfaces of the light area. In view of the fact that the kit is supplied with ready-made outer edges of any plate member, e.g. fitting in with grooves in the window main frame, a safe and tight connection with the window main frame is obtained as well.

In respect of the fact that a determined roof inclination always requires one of the two additional plate members to be used as top member and the other as bottom member the entire above mentioned range can be covered without any need of interchanging the side members or turning them upside down as prescribed in the above mentioned European patent application. In a given kit the plate members accommodating the side plates will thus be predetermined for use in the left or right side of the light area and must always be mounted with the same orientation in the upward or downward direction.

Thereby the particular advantage is obtained that the kit may be formed to fit in with a larger opening towards the room compared to the window light area proper, thereby providing for instance a niche within a vertical wall below the window.

A preferred embodiment of the frame panel kit according to the invention suitable for that purpose is characterized in that the first and second plate members are trapezoidal with top and bottom edges at right angles to said outer edge, the top edge having a length corresponding to a predetermined maximum wall thickness of the inclined roof at a minimum roof inclination, whereas the length of the bottom edge is extended and the height of the plate member between the top and bottom edges is proportioned to allow the plate member to include in addition to the side plate corresponding to the light area of the window a plate part forming a side wall of a niche below the window.

The invention further relates to an auxiliary device to be used when assembling the frame panel from the kit. According to the invention said auxiliary device includes a disc-shaped member with a rectilinear edge to be held against the window with the disc-shaped member extending substantially in a vertical plane, a plumb-line secured at a short distance from said edge, a set of marking lines extending in fan-shape on the disc-shaped member with a numbering of marking lines corresponding to a numbering of each set of marking lines one the first and second plate members, a further circular marking line being divided into two parts for selection of the additional plate members as top and bottom member, respectively.

By this very simple auxiliary device which without any noticeable price increase may be supplied together with the kit, the user is capable of deciding in situ, by simply measuring without making use of any separate measuring instruments which line marking on the side plates in either set to use and which of the additional plate members to use as top member and bottom member, resp.

The invention will now be explained in detail with reference to the schematical drawings, in which

Fig. 1 is an example of a frame panel with an underlying window niche designed by means of the kit accordding to the invention,

Figs 2, 3 and 4 illustrate embodiments of the plate members forming part of the kit.

Fig. 5 illustrates an embodiment of an auxiliary device to be used when assembling the frame panel,

Figs 6 and 7 illustrate a vertical and a horizontal sectional view, resp., of an installed frame panel, and

Fig. 8 illustrates the plate member shown in Fig. 2 with marked cutting lines.

In the example illustrated in Fig. 1 of the completed frame panel assembled from the kit according to the invention the frame panel consists of two side members 2 and 3 positioned in parallel vertical planes aligned with the vertical main frame members of the window 1 and a substantially horizontal top member 4 and a substantially vertical bottom member 5.

At their internal edges facing the room the side members 2 and 3 joint the internal sloping wall 6 and a vertical cupboard wall 7 positioned therebeneath, in which the frame panel in the illustrated embodiment forms a window niche with a substantially horizontal bottom plate 8 between the bottom member 5 and the vertical wall 7. The edges of plate members 2, 3, 4 and 8 and the spaces therebetween and the adjacent wall portions may, as illustrated, be covered by cappings 9.

Side members 2 and 3 may be shaped from a plate member 10 as illustrated in Fig. 2. Said member is produced, as will be described in the following, with a ready-made outer edge 11 to be mounted on the window main frame, e.g. in engagement with a groove in the vertical main frame member. The top edge 12 and the bottom edge 13 are parallel and perpendicular to the outer edge, and the plate member intended for a determined window size has a height that is so much higher than the window height corresponding to

the distance between line markings 14 and 15 parallel to edges 12 and 13 that plate member 10 by installation at an arbitrary roof inclination will overlap the end edges of the top member and bottom member of the panel when said two members are positioned correctly in a horizontal and a vertical position, resp., i.e. at an angle with outer edge 11 equal to and complementary with respect to the roof inclination, respectively.

In the illustrated example plate member 10 is trapezoidal with increasing width in the direction from top edge 12 towards bottom edge 13 and the member has such a magnitude that its lower part beyond the line marking 15 may accommodate the part of the side member which in the embodiment in Fig. 1 delimits the niche located beneath the window.

Plate member 10 illustrated in Fig. 2 and accommodating side member 2 to be mounted on the left side of the lining is provided on the reverse side illustrated in the figure with two sets of fan-shaped line markings 16 and 17, resp., outside line markings 14 and 15. In the illustrated example either of said sets comprises seven line markings 21a to 27a and 21b to 27b, resp., that are mainly angle-equidistant and which altogether covers an angular range from 30° to 60° in relation to outer edge 11, in the illustrated example corresponding to an angular separation of 5°. The line markings are made so that for a determined roof inclination one line marking is used from either set, e.g., 21a and 21b, for a roof inclination of 30°, said markings being at right angles to each other.

The line markings of sets 16 and 17 may incidentally to be used to adapt plate member 10 by cutting to the orientation determined by the roof inclination of the top and bottom edges of side member 2, but they are preferably provided with punched markings 18, e.g. in the form of blind holes of comparatively low depth reckoned from the back of the member and placed along the line markings so as to correspond to pre-drilled screw holes at the end edges of the additional plate members that will be dealt with in the following and which accommodate top member 5 and bottom member 5 of the frame panel.

As illustrated in Figs 3 and 4 said two additional plate members 19 and 20 are likewise provided with ready-made outer edges 28 and 29 to be fitted into the horizontal main frame members of the window main frame and both of them are angularly bent or curved along a bending line 30 and 31, resp., provided in parallel with and at a comparatively short distance from the outer edge and which separates a comparatively narrow outer part 32 and 33 abutting the window main frame and being almost perpendicular thereto and a comparatively wide inner part 34 and 35, resp., facing the actual attic and which in the assembled frame panel must be placed mainly vertically or mainly horizontally, as already mentioned.

In accordance with the invention the bending angles u and v of plate members 19 and 20 illustrated in Figs 2 and 3 are different, viz. about 45° and about, $\bar{3}0°$, $s\bar{o}$ that said two members are used as top member 4 and bottom member 5, resp., dependent on the actual roof inclination. From the recognition that it is of minor importance as regards the appearance of the frame panel whether outer parts 32 and 33 of plate members 19 and 20 are exactly perpendicular to the horizontal window main frame members or form a smaller angle therewith, it may thus be obtained that top member 4 and bottom member 5 of the frame panel as regards any roof inclination within the range determined by line marking sets 16 and 17 only present a deviation from the intended horizontal and vertical positioning that is quite indifferent to the appearance, viz. corresponding at a maximum to half the angular distance between the individual line markings, in the illustrated example ± 2.5°.

In order to measure the roof inclination and thus select the actual line markings of marking sets 16 and 17 and to determine the application of plate members 19 and 20 as a top member 4 and bottom member 5, resp., an auxiliary device may be used according to the invention which as illustrated in Fig. 5 may consist of a single disc member 36 having a rectilinear outer edge 37 to be held against a window 38 installed in the roof surface, the member 36 being held in a subsequently vertical plane.

A plumb-line 39 is secured to disc member 36 in fixing point 38 at short distance from the outer edge 37 and below the fixing point 38 member 36 is provided with a fan-shaped set 40 of line markings 21c to 27c corresponding to the markings of sets 16 and 17 on the back of each plate member 10, i.e. at the same angular separation for instance of 5° and covering a range from 30° to 60° in relation to edge 37.

In connection, with, for instance just opposite line marking set 40, disc member 36 is, moreover, provided with a bipartite marking 41 shaped as a circular arc to be used when selecting plate members 19 and 20 as the top member and bottom member, resp.

For a given individual roof inclination defined as the angle of the roof surface with the horizontal plane in the range from 27.5° to 62.5°, the following Table will show the selection of line markings and the application of plate members 19 and 20 as top member 4 and bottom member 5:

Roof Inclination	Line Marking	Top Member	Bottom Member
27.5 to 32.5	21 a-b	19	20
32.6 to 37.5	22 a-b	19	20
37.6 to 42.5	23 a-b	19	20
42.6 to 47.5	24 a-b	20 (19)	19 (20)
47.6 to 52.5	25 a-b	20	19
52.6 to 57.5	26 a-b	20	19
57.6 to 62.5	27 a-b	20	19

It will appear from the Table that line markings 21a to 23a of the upper line marking set 16 on plate members 10 are to be used solely in association with plate member 19 while line markings 24a to 27a are to be used solely in association with plate member 20. Inversely, line markings 21b to 23b of the bottom line marking set 17 are to be used in association with plate member 20 and line markings 24b to 27b are to be used solely in association with plate member 19. In the illustrated case with an odd number of line markings in either set it will be principally indifferent, as regards the middle angular sector of the range corresponding to line markings 24, whether use is made of one instruction or the other with respect to the application of plate members 19 and 20, but with view to obtaining a correct correspondence between the markings along said line marking provided for the boring of holes and the pre-drilled screw holes at the end of the plate member, a definite application of plate members 19 and 20 should in practice be prescribed and the same applies to line markings 24.

The fact that predetermined line markings in either set are thus meant to be used for the first and the second of plate members 19 and 20, resp., considerably facilitates in practice the correct positioning of hole markings 18 which as mentioned must correspond exactly to the pre-drilled screw holes 41 at the end edge of plate members 19 and 20 and which, moreover, must be positioned so accurately that outer edges 28 and 29 of said plate members fit exactly in with grooves provided for that purpose in the horizontal main frame members independent of the application of members 19 and 20 as top member of bottom member.

Figs 6 and 7 are sectional views of the frame panel when mounted. As illustrated in Fig. 6, grooves 44 and 45, resp., are provided on the horizontal main frame members 42 and 43 of window 38, said grooves being adapted to receive outer parts 32 and 33 of plate members 19 and 20 serving as top member 4 and bottom member 5, resp., in such a manner that the angular position of outer parts 32 and 33 may vary in relation to a plane position perpendicular to the window main frame.

As illustrated in Fig. 7 grooves 28 and 49 provided in the side members of the main frame and are adapted to receive the ready-made outer edges 11 of plate members 10 used as side members 2 and 3.

The cutting of plate members 10 will be explained in the following with reference to Figs 6 and 8.

Following the determination of an actual roof inclination by means of the auxiliary device shaped as disc members 36, in the present case e.g. an inclination of about 40° corresponding to marking line 23c on disc member 36, cutting lines 50 and 51 are drawn parallel to marking lines 23a and 23b on plate member 10, but at a distance therefrom corresponding to the plate thickness.

The distance T determining the width of the side member is then measured from the window main frame to sloping wall 6 at right angles to the plane of the window main frame, as illustrated in Fig. 6. Said measuring is effected preferably both at the uppermost horizontal main frame member 42 and opposite the corner between sloping wall 6 and vertical wall 7. The dimensions T are marked out on plate member 10 from its outer edge 11 and perpendicular thereto, following which the vertical cutting line 52 may be drawn between line markings 14 and 15.

The height H is subsequently measured as the height distance from the projection of the lower edge of groove 44 in the upper horizontal main frame member 42 on to sloping wall 6 to the corner between sloping wall 65 and vertical wall 7 and said height dimension H is marked out on plate member 10 downwards from line marking 14 along cutting line 52 on to point 53.

The desired depth B of the niche beneath the frame panel is then determined as the distance from the corner between sloping wall 6 and vertical wall 7 to the desired positioning of bottom member 8. The resulting dimension is then marked out on plate member 10 reckoned from point 53 along a cutting line 54 parallel to cutting line 51 that is parallel to line marking 23b, following which cutting line 55 is drawn at right angles to lines 51 and 54.

It is pointed out that the measuring and the marking-out steps have been explained here only very roughly. In practice it is generally necessary to make corrections of the thickness of plate and so on. However, such corrections may be pre-calculated and then specified in detailed directions for use supplied with the kit.

After said two side members 2 and 3 have been adapted by cutting and the holes therein have been drilled by use of punched markings 18 in actual line markings, the width of plate members 19 and 20 are adapted by cutting at a distance from inner edges 55 and 56, resp., located opposite outer edges 28 and 29, following which side members 2 and 3 may be screwed together with top member 4 and bottom member 5 - supplied in correct dimensions of length and, as mentioned, with pre-drilled screw holes as shown by 57 - into a substantially rectangular box that is subsequently positioned correctly in relation to the window main frame and sloping wall 6 and vertical wall 7 and secured thereto in a manner not shown. Bottom member 8 that may be prepared in situ or supplied as a separate part is finally mounted. In order to obtain access to the space behind vertical wall 7 bottom member 8 may be appropriately be hinged at the back.

The manufacturing of plate members 10 may be simplified in that each of the fan-shaped line markings is solely constituted by perforation markings 18 provided along a line in the form of punched or blind holes.

Claims

1. A frame panel kit for a window installed in an inclined roof, comprising first and second plate members (10) from which vertical side plates (2,3) of the panel perpendicular to the roof surface are made and top and bottom members (4,5), to be arranged in the panel between opposing front surfaces of the side plates, each of said first and second plate members being provided on its rear side with two sets (16,17) of marking lines (21a to 27a, 21b to 27b) extending in fan shape with preferably uniform angular separation, each marking line (27a, ..) in one set extending at right angles to a marking line (21b, ..) of the other set to provide a pair of marking lines securing substantial horizontal and vertical arrangement, respectively, of said top and bottom members (4,5) between said side plates, characterized in that said top and bottom members (4,5) are formed from additional plate members (19,20) which are each bent into an angular shape along a bending line (30, 31) parallel to and at a short distance from an outer edge (28, 29) of the member under bending angles (U, V) of approximately 30° and 45°, respectively, said outer edges (28,29) of the additional plate members as well as outer edges (11) of the first and second plate members (10) being ready-made to engage into grooves (44, 45, 48, 49) in the window main frame whereas the inner edges of the side plates (4,5) and top and bottom members are formed by cutting away excessive parts of said first and second plate members (10) and said additional plate members (19,20), each set of marking lines on each of said first and second plate members covering a range of 30° to 60° for the angle between the outer edge of the plate member and the respective marking lines of each set.

2. A frame panel kit as claimed in claim 1, characterized in that drilling positions (18) are provided along each of said marking lines (21a to 27a; 21b to 27b) for drilling holes corresponding with pre-drilled screw holes (57) in the end edges of said additional plate members.

3. A frame panel kit as claimed in claim 1 or 2, characterized in that the outer edges (28, 29) of the additional plate members (19, 20) are formed to allow a certain variation of the angular position of the parts of said top and bottom members (4,5) engaging the window main frame when arranged in said grooves of the main frame.

4. A frame panel kit as claimed in claim 1, 2 or 3, characterized in that the first and second plate members (10) are trapezoidal with top and bottom edges (12, 13) at right angles to said outer edge (11), the top edge (12) having a length corresponding to a predetermined maximum wall thickness of the inclined roof at a minimum roof inclination, whereas the length of the bottom edge (13) is extended and the height of the plate member between the top and bottom edges is proportioned to allow the plate member to include in addition to the side plate corresponding to the light area of the window a plate part forming a side wall of a niche below the window.

5. An auxiliary device for use in preparation of a window frame panel from a frame panel kit as claimed in any of claims 1 to 4, characterized in that it includes a disc-shaped member (36) with a rectilinear edge (37) to be held against the window with the disc-shaped member (36) extending substantially in a

vertical plane, a plumb-line (39') secured at a short distance from said edge (37), a set (40) of marking lines extending in fan-shape on the disc-shaped member with a numbering (21c to 27c) of marking lines corresponding to a numbering of each set (16,17) of marking lines one the first and second plate members (10), a further circular marking line (41) being divided into two parts for selection of the additional plate members as top and bottom member, respectively.

Revendications

1. Panneau en kit pour un cadre de fenêtre montée dans un toit incliné, comprenant des premiers et seconds éléments de plaque (10) à partir desquels sont formées des plaques latérales verticales (2,3) du panneau, perpendiculaires à la surface du toit, ainsi que des éléments supérieur et inférieur (4,5) à disposer dans le panneau entre les faces frontales opposées des plaques latérales, chacun desdits premiers et seconds éléments de plaque comportant, sur leur verso, deux jeux de lignes de marquage (21a à 27a; 21b à 27b) s'étendant en éventail à séparation angulaire de préférence uniforme, chaque ligne de marquage (27a, ..) de l'un de ces jeux s'étendant à angle droit par rapport à une ligne de marquage (27b, ..) de l'autre jeu pour former une paire de lignes de marquage assurant une mise en place essentiellement horizontale et verticale, respectivement, desdits éléments supérieur et inférieur (4,5) entre lesdites plaques latérales, caractérisé en ce que lesdits éléments supérieur et inférieur (4,5) sont formés à partir d'éléments supplémentaires de plaque (19,20) dont chacun, par pliage le long d'une ligne de pliage (30,31) parallèle à son bord externe (28,29) et située à courte distance de ce bord, est angulairement conformé sous des angles de pliage (U, V) d'environ 30° et 45°, respectivement, lesdits bords externes (28,29) des éléments supplémentaires de plaque ainsi que les bords externes (11) des premiers et seconds éléments de plaque (10) étant prêts pour insertion dans des rainures (44,45,48,49) dans le cadre principal de fenêtre, tandis que les bords internes des plaques latérales (4,5) et des éléments supérieur et inférieur sont formés par découpe des parties en excès desdits premiers et seconds éléments de plaque (10) et desdits éléments supplémentaires de plaque (19,20), chaque jeu de lignes de marquage sur chacun desdits premiers et seconds éléments de plaque couvrant une plage angulaire de 30° à 60° pour l'angle entre le bord externe de l'élément de plaque et la ligne de marquage respective de chaque jeu.

2. Panneau en kit selon la revendication 1, caractérisé en ce que des positions de perçage (18) sont prévues le long de chacune desdites lignes de marquage (21a à 27a; 21b à 27b) pour perçage de trous correspondant à des trous de vis prépercés (57) dans les bords d'extrémité desdits éléments supplémentaires de plaque.

3. Panneau en kit selon la revendication 1 ou 2, caractérisé en ce que les bords externes (28,29) des éléments supplémentaires de plaque (19, 20) sont conformés pour permettre une certaine variation de la position angulaire des parties desdits éléments supérieur et inférieur (4,5) en prise avec le cadre principal de fenêtre lorsqu'elles sont mises en place dans lesdites rainures du cadre principal.

4. Panneau en kit selon la revendication 1, 2 ou 3, caractérisé en ce que les premiers et seconds éléments de plaque (10) sont de forme trapézoïdale à bord supérieur (12) et bord inférieur (13) perpendiculaires audit bord externe (11), le bord supérieur (12) présentant une longueur correspondant à une épaisseur maximale prédéterminée de paroi du toit incliné sous inclinaison minimale de celui-ci, tandis que le bord inférieur (13) présente une longueur accrue et que la hauteur de l'élément de plaque entre le bord supérieur et le bord inférieur est proportionnée de façon telle que l'élément de plaque peut, en plus de la plaque latérale correspondant à l'embrasure de la fenêtre, comporter une partie de plaque formant paroi latérale d'une niche sous la fenêtre.

5. Dispositif auxiliaire utilisable pour la préparation d'un panneau pour cadre de fenêtre à partir d'un panneau en kit selon l'une quelconque des revendications 1 à 4, caractérisé en ce qu'il comprend un plateau (36) à bord rectiligne (37) à placer contre la fenêtre, ce plateau (36) s'étendant dans un plan sensiblement vertical, une ligne à plomb (39') fixée à courte distance dudit bord (37), un jeu (40) de lignes de marquage s'étendant en éventail sur le plateau, avec numérotage (21c à 27c) de lignes de marquage correspondant à un numérotage de chaque jeu (16,17) de lignes de marquage sur les premiers et seconds éléments de plaque (10), une ligne supplémentaire circulaire de marquage (41) étant divisés en deux parties pour le choix des éléments supplémentaires de plaque en tant qu'élément supérieur et élément inférieur, respectivement.

Patentansprüche

1. Paneelausrüstung für einen in ein geneigtes Dach eingebauten Fensterrahmen, umfassend erste und zweite Plattenelemente (10), aus welchen senkrechte rechtwinkelig zur Dachfläche liegende Seitenplatten (2, 3) des Paneels gemacht werden, sowie obere und untere Platten (4, 5) zur Anbringung im Paneel zwischen einander zukehrenden Vorderseiten der Seitenplatten, wobei das erste bzw. zweite Plattenelement jeweils auf seiner Rückseite mit zwei Sätzen (16, 17) fächerförmig verlaulaufender, vorzugsweise winkeläquidistanter Markierungslinien (21a-27a, 21b-27b) versehen ist, und jede Markierungslinie (27a, ..) des einen Satzes rechtwinkelig zu einer Markierungslinie (21b, ..) des zweiten Satzes verläuft und ein Paar von Markierungslinien bildet, die eine annähernd waagrechte bzw. senkrechte Anordnung der oberen und unteren Platten (4, 5) zwischen den Seitenplatten gewährleisten, dadurch **gekennzeichnet,** dass die oberen und unteren Platten (4, 5) aus zusätzlichen Plattenelementen (19, 20) gebildet sind, die jede für sich in Winkelform entlang einer Biegelinie (30, 31) parallel zu und in kleinem Abstand von einer Aussenkante (28, 29) des Elements unter Biegewinkeln (U, V) von ungefähr 30° bzw. 45° gebogen sind, wobei sowohl die Aussenkanten (28, 29) der zusätzlichen Plattenelemente als die Aussenkanten (11) des ersten und zweiten Plattenelements (10) zum Eingreifen in Falzen (44, 45, 48, 49) des Fensterhauptrahmens bereit gestellt werden, während die Innenkanten der Seitenplatten (4,5) und der oberen und unteren Platten durch Wegschneiden von überschüssigen Teilen der ersten und zweiten Plattenelemente (10) und der zusätzlichen Plattenelemente (19, 20) gebildet werden, und jeder Satz von Markierungslinien auf jedem ersten und zweiten Plattenelement einen Bereich von 30° bis 60° des Winkels zwischen der Aussenkante des Plattenelements und den betreffenden Markierungslinien eines jeden Satzes deckt.

2. Paneelausrüstung nach Anspruch 1, dadurch **gekennzeichnet,** dass entlang jeder Markierungslinie (21-27a; 21b-27b) Markierungen (18) für Bohrlöcher entsprechend vorgebohrten Schraubenlöchern (57) in den Endkanten der zusätzlichen Plattenelemente vorgesehen sind.

3. Paneelausrüstung nach Anspruch 1 oder 2, dadurch **gekennzeichnet,** dass die Aussenkanten (28, 29) der zusätzlichen Plattenelemente (19, 20) so geformt sind, dass sie eine gewisse Variation der Winkelstellung der im Hauptrahmen des Fensters eingreifenden oberen und unteren Platten (4, 5) erlauben, wenn diese in den Falzen des Hauptrahmens angeordnet sind.

4. Paneelausrüstung nach Anspruch 1, 2 oder 3, dadurch **gekennzeichnet,** dass die ersten und zweiten Plattenelemente (10) trapezförmig sind mit zur Aussenkante (11) rechtwinkelig verlaufenden oberen und unteren Kanten (12, 13), wobei die obere Kante (12) eine einer vorausbestimmten maximalen Schrägwanddichte bei minimaler Dachneigung entsprechende Länge aufweist, während die Länge der unteren Kante (13) erweitert ist, und die Höhe des Plattenelements zwischen den oberen und unteren Kanten derart bemessen ist, dass das Plattenelement ausser der Seitenplatte entsprechend dem Lichtbereich des Fensters, einen Plattenteil, der eine Seitenwand für eine unter dem Fenster befindliche Nische bildet, miteinschliesst.

5. Hilfsvorrichtung zur Verwendung bei der Herstellung eines Fensterrahmen-Paneels aus einer Paneelausrüstung nach einem der Ansprüche 1-4, dadurch **gekennzeichnet,** dass sie ein scheibenförmiges Element (36) mit einer geradlinigen Kante (37) zur Anbringung gegen das Fenster mit dem scheibenförmigen Element (36) im wesentlichen in senkrechter Ebene verlaufend, eine in kleinem Abstand von erwähnter Kante (37) befestigte Lotschnur (39'), einen Satz (40) auf dem scheibenförmigen Elementfächerförmig verlaufender Markierungslinien mit einer Numerierung (21c-27c) entsprechend einer Numerierung von jedem Satz Markierungslinien auf den ersten und zweiten Plattenelementen (10), und ferner eine zweiteilige, kreisbogenförmige Markierung (41) zur Wahl der zusätzlichen Plattenelemente als obere bzw. untere Platte, umfasst.

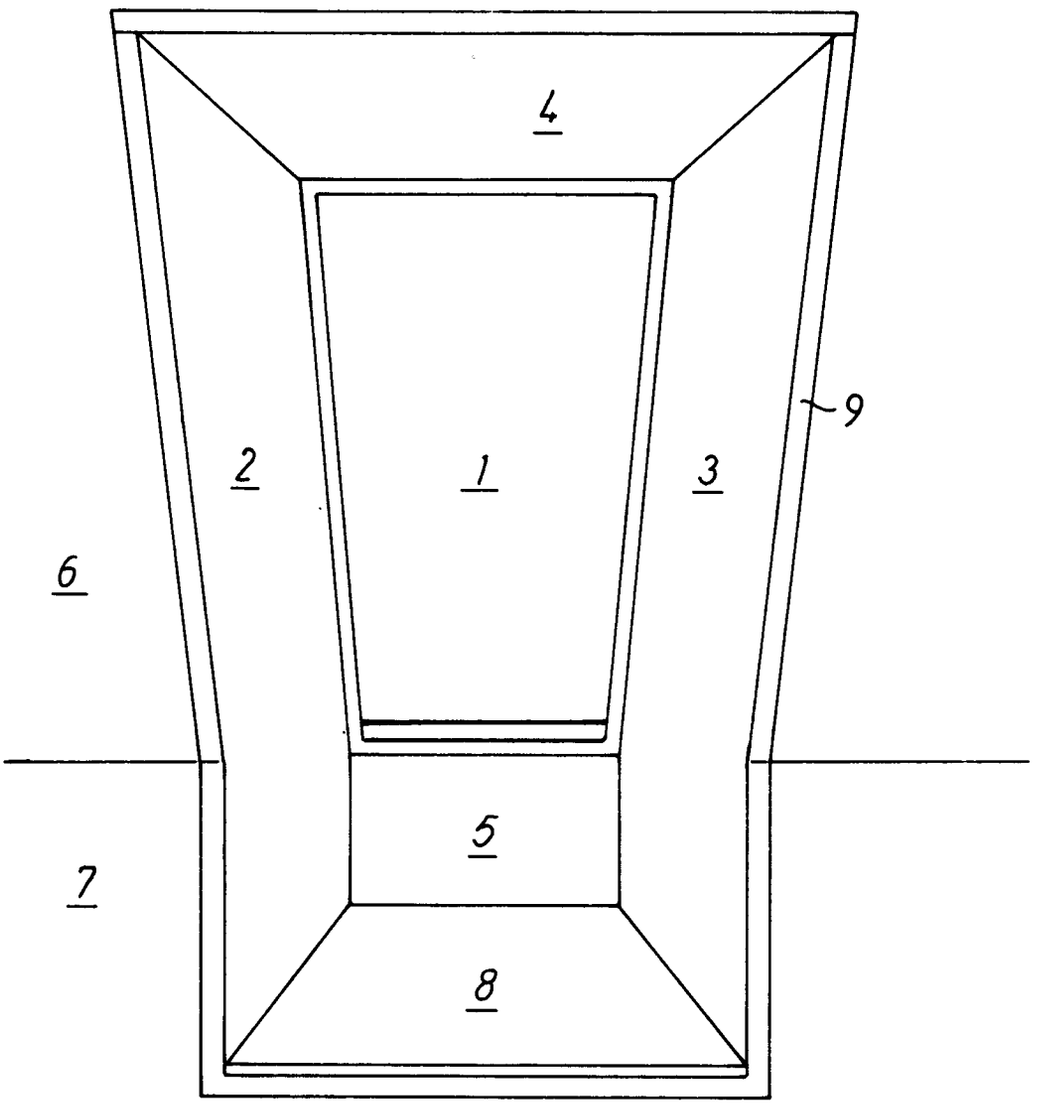

FIG. 1

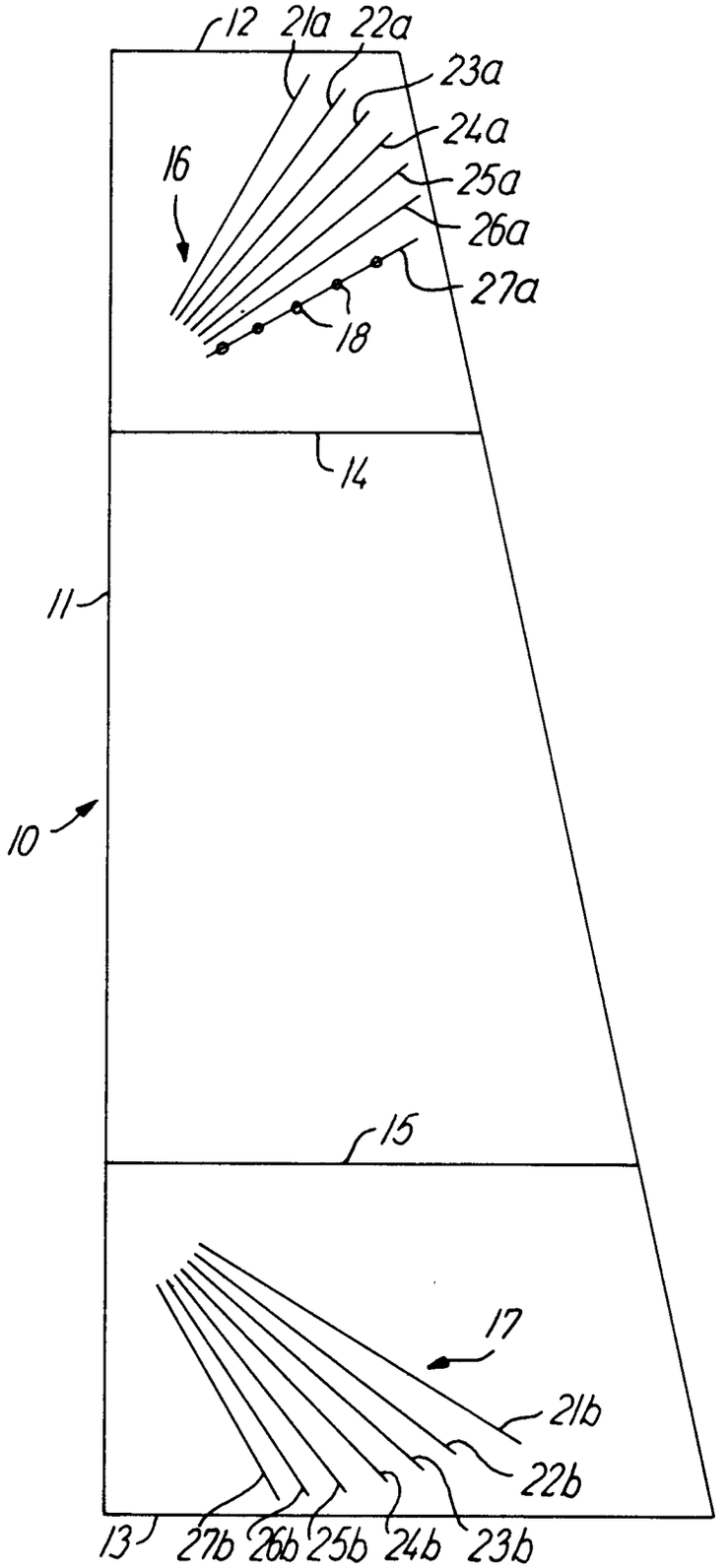
12
21a
22a
23a
24a
25a
26a
27a
16
18
14
11
10
15
17
21b
22b
13
27b
26b
25b
24b
23b

FIG. 2

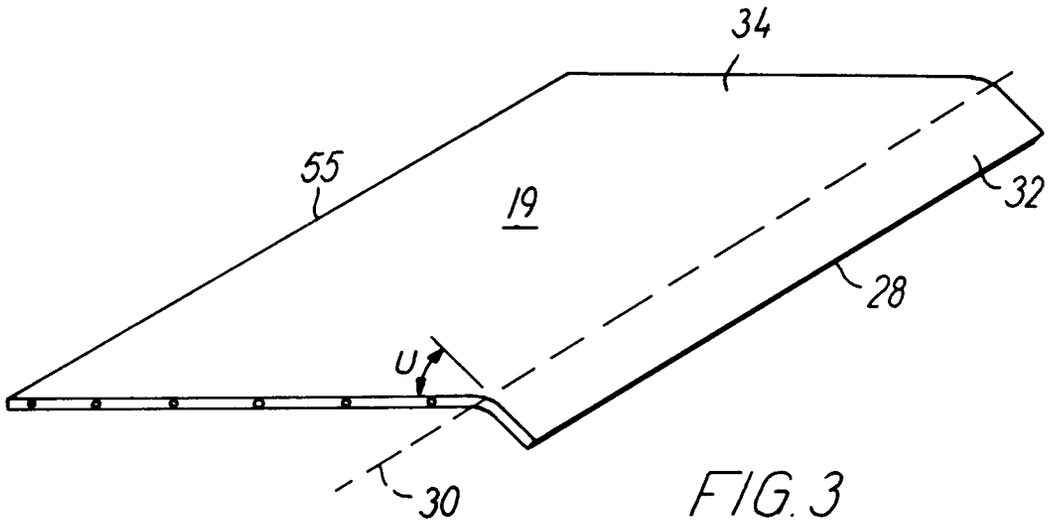

FIG. 3

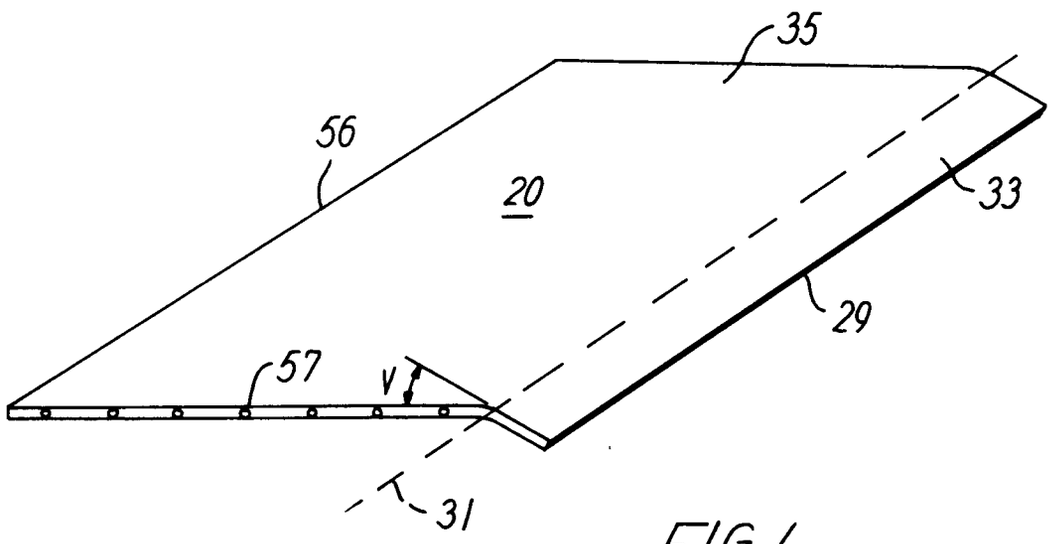

FIG. 4

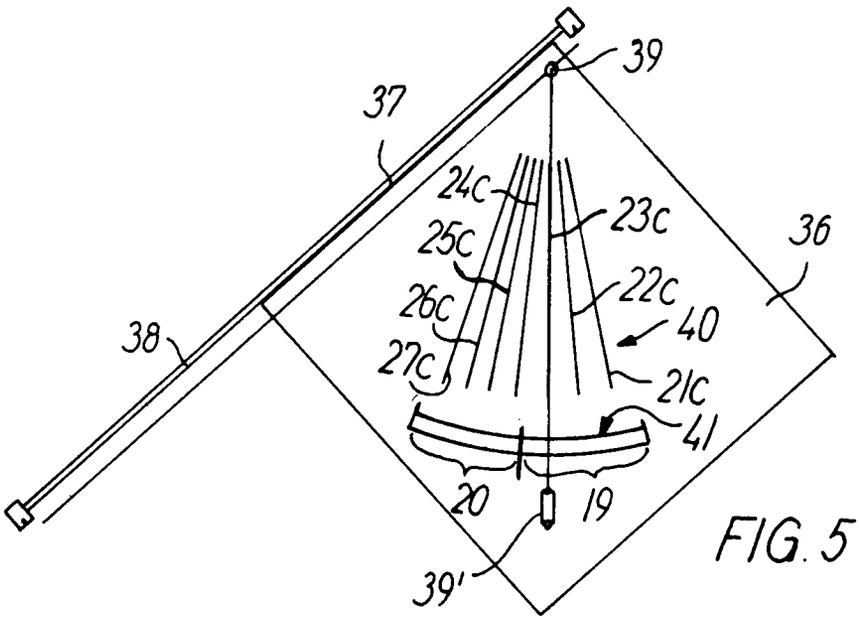
39
37
24C
23C
36
25C
22C
26C
40
38
27C
21C
41
20
19
39'

FIG. 5

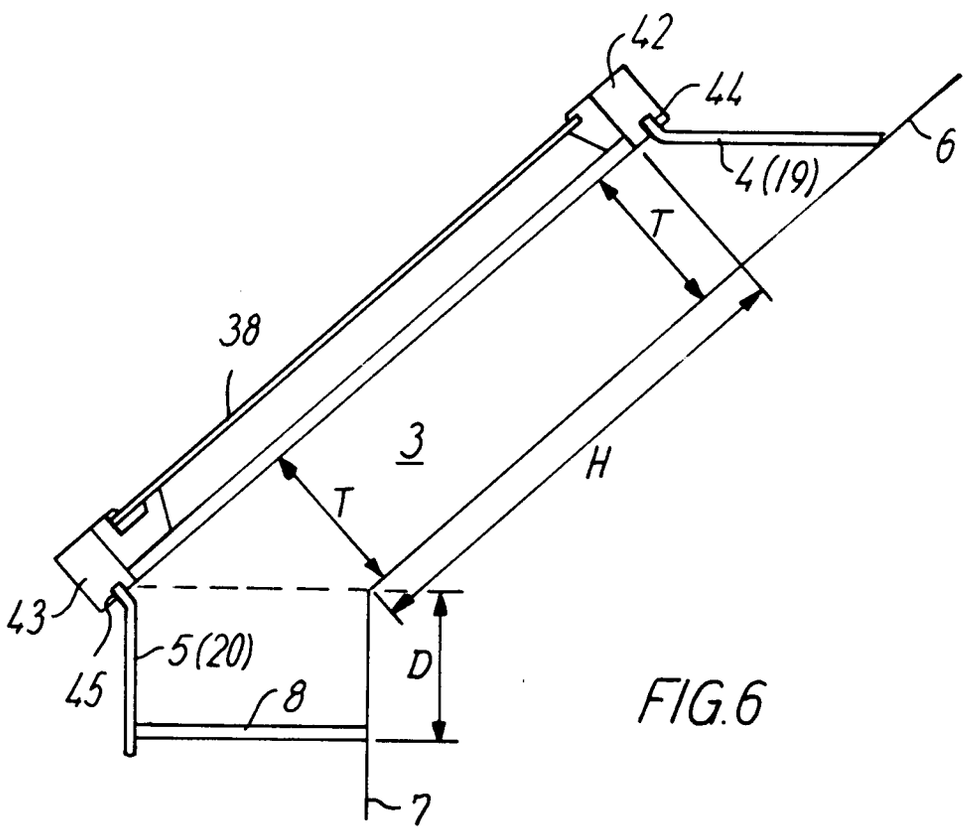
42
44
6
4 (19)
T
38
3
H
T
43
5 (20)
D
45
8
7

FIG. 6

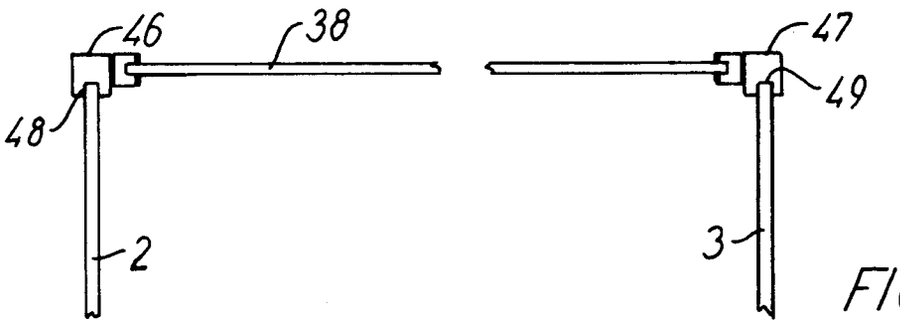

FIG. 7

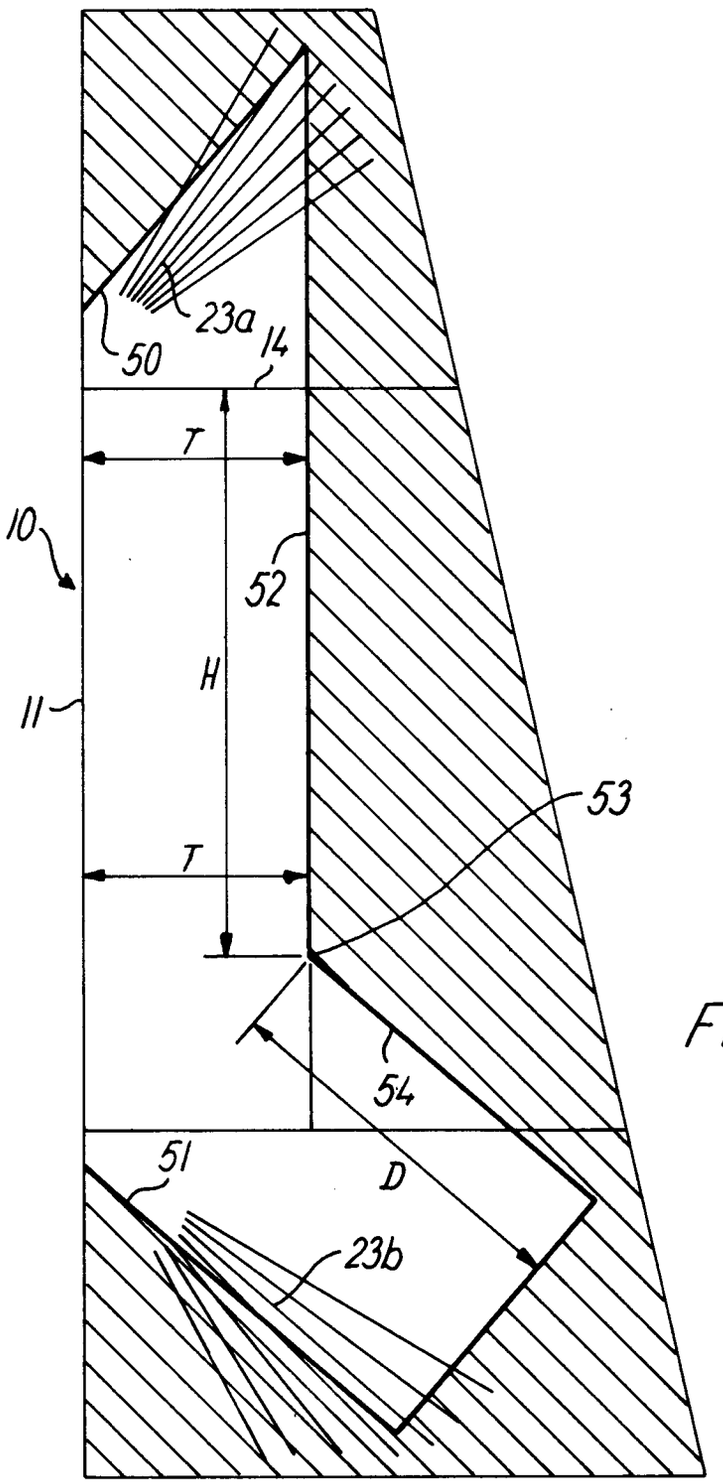

FIG. 8