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D. E. BLOK

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ADJUSTABLE PANEL CONSTRUCTION

Filed April 16, 1962

FIG. 1

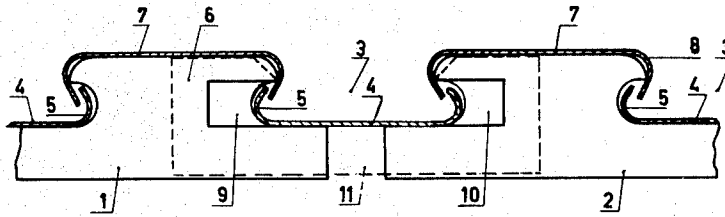


FIG. 2

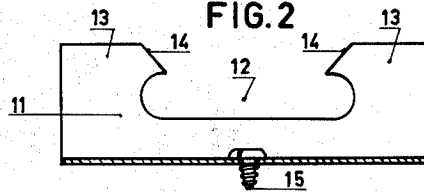


FIG. 3

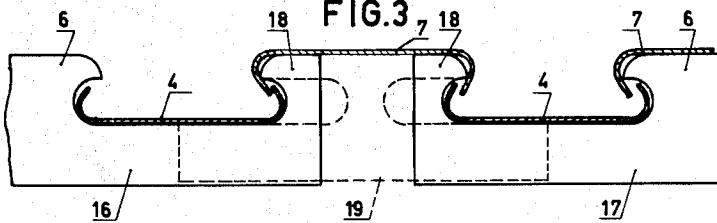


FIG. 4

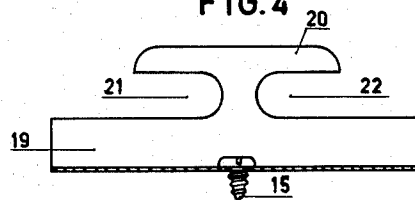


FIG. 5



INVENTOR

DIRK EVERT BLOK

BY *Stevens, Davis, Miller & Mosher*  
ATTORNEYS

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## ADJUSTABLE PANEL CONSTRUCTION

Dirk Evert Blok, Zwijndrecht, Netherlands, assignor to Hunter Douglas International (Quebec) Limited, Montreal, Quebec, Canada, a corporation of Canada

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6 Claims. (Cl. 52—492)

This invention relates to a construction element provided with two or more profiled stringers with alternately successive projections and recesses for arranging profiled striplike elements thereon and therein, and relates also to an intermediate piece for such a construction element. Such a construction element is particularly suitable to be used as a wall, a partition, a panel, a covering plate for walls, roof constructions, etc.

The profiled striplike elements used with such construction elements have a standard width. The length of the construction element which has to be manufactured is not always a multiple of the width of a striplike element so that it is necessary to cut a part from one of the striplike elements. Consequently difficulties arise on securing this so treated strip while moreover the entire construction becomes less beautiful. Another disadvantage of these known construction elements is that they run the risk of being deformed as a result of the great tensions occurring in the elements on expansion and shrinkage caused by temperature variations.

The above disadvantages are avoided by means of the construction element according to the invention and this by the fact that each stringer consists of two or more parts; an intermediate piece being provided between these two parts or each two parts, the ends of which are situated at a distance from each other, said intermediate piece engaging partially around or into the stringer ends, and that receiving spaces are arranged in the stringer end or in the intermediate piece, and the striplike elements arranged in the recesses of the stringers can move in said receiving spaces when the stringer ends can move to each other and from each other. On mounting the construction element always a certain number of striplike elements are used without the necessity of making one of the elements narrower since each required length of the construction element may be obtained by sliding two adjacent elements situated in recesses of the stringers or one of these elements more or less far under an element situated on projections. Thereby the striplike elements are and remain always solidly clamped in the recesses or on the projections of the stringers and the intermediate pieces. Moreover the stringers and the striplike element support each other thereby. In case of temperature variations the construction element can expand and shrink freely.

According to the invention the intermediate piece may consist of a piece of stringer provided with at least one recess for a profiled striplike element, whereby parts of the stringer are cut away from the upper edges of the recess.

Another embodiment of the intermediate piece according to the invention is characterized in that it consists of a piece of stringer provided with at least one projection for securing thereon a profiled striplike element, receiving spaces for the side edges of striplike elements extending under this projection.

The invention will be further explained below with reference to the accompanying drawings showing by way of example two embodiments of the construction element and of the intermediate piece according to the invention.

FIG. 1 shows a longitudinal section of a part of a construction element with intermediate piece.

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FIG. 2 shows a side view of the intermediate piece of FIG. 1.

FIG. 3 shows a longitudinal section of a part of the second embodiment.

FIG. 4 shows a view of the intermediate piece of FIG. 3.

FIG. 5 shows a cross-section of a stringer.

Referring to the embodiment shown in FIGURE 1, a structural panel comprises a number of striplike panel elements 4 and 7 having flanged edges 5 and 8, respectively. Each panel element 4 is supported with its edge flange 5 parallel to and overlapping and edge flange 8 of an adjacent oppositely disposed panel element 7, so that the alternating panel elements 4 and 7 together form a continuous composite panel, suitable for use, for example, as a wall, partition, awning or a roof structure.

The panel elements 4 and 7 are carried by elongated support members 1 and 2 that extend perpendicularly to the edges of the panel elements or one side thereof. The support members 1 and 2 are of U or V cross section, as shown in FIGURE 5. Each support member 1 and 2 is provided along its length with alternating projection 6 and flanged recesses 3, that are shaped to support the panel elements 7 and 4, respectively.

The support members 1 and 2 (parts only of which are shown in FIGURE 1) are disposed end to end with a small gap separating them. Each wall of the U-shaped channel of the support member 1 is provided at the end thereof, which faces the end of the support member 2, with an end recess 9 and a similar end recess 10 is provided in the ends with each wall of the support member 2. The end recesses 9 and 10 extend farther beneath the projection 6, which are located at the ends of the support members 1 and 2, respectively, than the recesses 3 which are formed in the length of each support member. The end recesses 9 and 10 are adapted to receive the opposite edge flanges 5' of an intermediate panel element 4', which is placed across the gap separating the support members 1 and 2. The depth of the end recesses 9 and 10 is such that some relative movement of the support members 1 and 2 towards and away from each other is permitted without the structure panel being placed under strain. As a result of this, however, the intermediate panel elements 4', which is shown in dotted line position in FIGURE 1, is not securely held in place and in the absence of further structure, would be free to slide in the direction of its edges flanges 5'.

To connect the adjacent support members 1 and 2 and to support the further panel element 4', a connecting member 11 is provided. As shown in FIGURE 2, the connecting member 11 comprises channel material which is disposed within the channels of the adjacent support members 1 and 2 and extends across the gap between the support members, as shown in dotted lines in FIGURE 1.

Referring to FIGURE 2, the connecting member 11 is provided with a central recessed portion 12 and two projections 13 in each side wall of the U-shaped channel thereof. The outwardly facing edges of the projections 13 are straight and the inwardly facing edges 14 are beveled, so that the edges 14 form inwardly extending flanges at the two ends of the central recess portion 12.

The central recess portion 12 of the connecting element 11 is dimensioned to support the intermediate panel element 4', so that the latter is firmly held in place while relative movement of the support members 1 and 2 is permitted. The base of the channel of the connecting member 11 is provided with a mounting screw 15 to permit the structural panel to be mounted to a supporting surface (not shown).

The embodiment according to FIG. 3 distinguishes itself in the first place from that according to FIG. 1 in

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that two stringers 16, 17 are provided, whereby each of the ends lying at a distance from each other have a projection 18 corresponding to a part of the projections 6. Between these stringer ends there is provided an intermediate piece which has a projection 20 on which a striplike element 7 can be clamped. Receiving spaces 21 and 22 into which the striplike elements 4 can move with their edges more or less far are situated under this projection. The intermediate piece 19 has been secured to a not shown support by means of one or more screws 15.

The embodiment shown in FIG. 3 acts on expansion or shrinkage in a similar way as that according to FIG. 1.

On account of the fact that the stringers can move to each other and from each other the length of the construction element may be modified and adapted.

As appears from FIG. 5 the stringers and the intermediate pieces have approximately a U- or V-shaped profile.

It will be understood that the invention is not restricted to the embodiments described above and shown in the accompanying drawings but that these may be modified in many ways without departing from the scope of the invention. For example the side edges of the striplike elements may be bent in another way as shown and the stringers may also have another profile. The stringers and the striplike elements may consist of metal, preferably aluminium, plastic material or another suitable material.

I claim:

1. A structural panel comprising a plurality of panel elements, said panel elements being in the form of shallow, channel-shaped members having inwardly bent longitudinal side walls, a support member comprising at least two aligned support elements having ends which are close to but spaced from each other, and connector elements overlapping the ends of each of said support element, each said support member having alternate projections and recesses along at least one side edge for clampingly retaining and supporting said panels in said recesses with the side walls being upwardly directed and on said projections with the side walls being downwardly directed so that the bent side wall edges thereof overlap the bent side wall edges of the adjacent panel elements, the support elements being free to move relatively to the connecting member and relatively to each other in the direction of their length with the connecting member being so proportioned as to keep the sequence of uniform projections and recesses from being interrupted.

2. A structural panel according to claim 1, wherein the support members and the connecting element are formed of channel material, the connecting element being received in the channel of each support member.

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3. A structural panel according to claim 1, wherein each connecting element is provided with at least one recess in which an intermediate panel element is supported, the bent longitudinal side wall edges of the intermediate panel element overlapping the adjacent bent longitudinal edges of the two panel elements disposed nearest the ends of the two support elements, the support elements and the connecting element being formed of channel material, and the connecting element being received in the channel of each support element.

4. A structural panel according to claim 1, wherein each connecting element is provided with at least one recess in which an intermediate panel element is supported, the bent longitudinal side wall edges of the intermediate panel element overlapping the adjacent bent longitudinal side wall edges of the two panel elements disposed nearest the ends of the two support elements, the adjacent ends of the two support elements being provided with recesses into which the bent longitudinal side wall edges of the intermediate panel element may slide on relative movement of the support elements, the support elements and the connecting element being formed of channel material, and the connecting element being received in the channel of each support element.

5. A structural panel according to claim 1, wherein each connecting element is provided with at least one projection on which an intermediate panel element is supported so that the bent longitudinal side wall edges of the intermediate panel element overlaps the adjacent bent longitudinal edges of the two panel elements disposed nearest the ends of the two support elements, said projection of the connecting element being provided with two recesses, each facing towards one of the support elements, each said recess being adapted to receive the adjacent bent longitudinal side wall edge of the panel elements disposed nearest the end of the respective support element, the support elements and the connecting element being formed of channel material, and the connecting element being received in the channel of each support element.

6. A structural panel according to claim 1, wherein securing means is provided in the base of the channel of the connecting element to secure the connecting element to a supporting structure.

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CHARLES E. O'CONNELL, *Primary Examiner*.

JACOB SHAPIRO, EARL J. WITMER, *Examiners*.