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(54) **Self-supporting and finish sheet element to realize coverings and/or false ceilings**

(57) The invention relates to a self-supporting and finish sheet element (1) to realize coverings and/or false ceilings having a finished lower surface (2) and above a plurality of longitudinal projecting elements or reinforcing ribs (3).

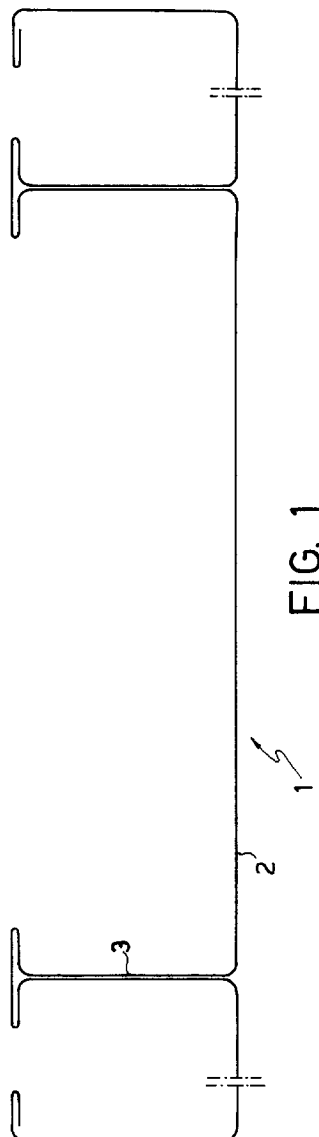


FIG. 1

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Description

The present invention relates to a self-supporting and finish sheet element to realize coverings and/or false ceilings.

More particularly, the invention concerns a sheet element structured in such a way to be self-supporting and to give lower down, i.e. on the visible side, a substantially flat finished structure.

As it is well known, in the building covering technique, foamed polyurethane panels are employed generally comprised of two sheets, a lower sheet and an upper sheet, with a polyurethane foamed layer placed between said sheets.

The foam has two functions: the basic function is to realize a heat insulation of the covering assembly, while the other function is to realize an adhesion between the lower sheet and the upper sheet.

The upper sheet is the one generally having a profile suitable to draw the rain water and the lower sheet is the one generally realized with a flat profile in order to be used as false ceiling.

This kind of panels has a series of remarkable drawbacks, determining remarkable inconveniences.

In fact, the support action of this kind of panel is entrusted to the adhesion of the polyurethane with the two sheets: therefore the builders have the tendency to give very wide indications as to the overload spans since these when panels are new, the adhesion between the sheets and the foam is good and thus the results of the tests allow to indicate very wide spans.

However, after some time, the drawback occurs that the adhesion diminishes so that practically after a certain number of years the panels become two distinct and separated elements.

In consequence of the above, as far as the heat insulation aspect is concerned, they remain effective, but for the overload aspect they are no more efficient since practically the support of the snow, wind, etc. overload is only obtained by the upper sheet profile.

Therefore, theoretically, the panels should be declared as having a lower support capability with respect to the original one.

The inconveniences deriving from this kind of situation are well evident.

In view of the above, and taking also into consideration other typical problems of this field, the Applicant has thought and realized a solution for a self-supporting lower sheet allowing to realize a covering or a false ceiling having on the visible side a substantially flat surface and above a series of projecting ribs determining the self-supporting features.

It is therefore specific object of the present invention a self-supporting and finish sheet element to realize coverings and/or false ceilings having a finished lower surface and above a plurality of longitudinal projecting elements or reinforcing ribs.

Preferably, according to the invention, said project-

ing elements or reinforcing ribs are realized integral with the panel.

Further, according to the invention, said projecting elements can be realized separately with respect to the main structure of the panel and coupled to the same, for example by welding or any other method.

Still according to the invention, the number of projecting elements, their height and the distance between the same are determined on the basis of the specific use needing.

The shape of the projecting elements can also be modified, being in any case necessary to make the connection with the main plane of the sheet element in such a way to have the outer view surface of the panel substantially flat.

Above the sheet element according to the invention an outer shaped sheet for drawing the water, the snow and so on can be coupled.

Still according to the invention, between said sheet element and said upper sheet an insulating material, unflammable or not, can be provided, e.g. polyurethane foam, mineral etc.

Further, according to the invention, above said projecting elements or ribs, transverse section bars can be provided, placed at least in correspondence of the support points of the sheet element, upon which the upper sheet rests so as to create an air room.

Obviously, the number of section bars can be higher, placing some of them also in intermediate positions between the supports.

The present invention will be now described for illustrative, but not limitative purposes, according to its preferred embodiments, with particular reference to the figures of the enclosed drawings, wherein:

figure 1 shows a partial front view of a sheet element according to the invention;

figure 2 shows a partial front view of a first use of the sheet element according to the invention; and

figure 3 shows a partial front view of a second use of the sheet element according to the invention.

Referring first at figure 1, it is shown a sheet element 1, realized in this embodiment as a single piece.

The sheet element 1 has a substantially smooth lower surface 2, and a plurality of upper projecting ribs 3, spanning all the extension of the sheet element 1, and determining the self-sustaining features of the same sheet element.

Said ribs 3 will be disposed, as already said, at a distance one from the other and will be height so as to allow the obtainment of the support features necessary to the specific needing, i.e. the span wished between a support and the other.

The sheet element 1 according to the invention can be used as false ceiling for sheds and like, without the

necessity of providing further elements.

A layer of insulating material could be only provided above said element in case it is necessary to obtain a heat insulation of the room.

Further, the sheet element according to the invention can be used to realize composite panels of the above kind previously described and already known, obviating to the mentioned drawbacks.

An application of this kind is shown in figure 2.

Really, the solution shown in figure 2 corresponds to the one providing the composite elements described above, but in this case all the support action is entrusted to the sheet element 1 or lower sheet, while the upper sheet 4 must only realize the drawing of water, snow, etc.

Further, the insulating material 5 provided between the upper sheet 4 and the sheet element 1 according to the invention has no adhesion task, so that it can be of any suitable kind.

The span between the panels will be determined only by the height of the projecting ribs 3 and by their distance.

A further solution is the one shown in figure 3, wherein the composite sheet element provides also an air room 6.

In order to realize the air room 6, above the ribs 3 some transverse section bars 7 are provided, upon which the upper sheet is supported.

The section bars 7 will be provided at least in correspondence of the supports of the sheet element 1, although a higher number could be provided for strengthening reasons.

As it can be noted, the solution proposed according to the present invention, either it is realized only for a false ceiling, or to realize composite panels, allows to have a substantially flat visible lower surface and a high support action obtained only by the sheet element 1, so that it is possible to work with very wide spans.

The present invention has been described for illustrative, but not limitative purposes according to its preferred embodiments, but it is to be understood that modifications and/or changes can be introduced by those skilled in the art without departing from the relevant scope as defined by the enclosed claims.

Claims

1. Self-supporting and finish sheet element to realize coverings and/or false ceilings, characterized in that it has a finished lower surface and above a plurality of longitudinal projecting elements or reinforcing ribs.
2. Sheet element according to claim 1, characterized in that said projecting elements or reinforcing ribs are realized integral with the panel.
3. Sheet element according to claim 1, characterized

in that said projecting elements are realized separately with respect to the main structure of the panel and coupled to the same.

4. Sheet element according to one of the preceding claims, characterized in that the number of projecting elements, their height and the distance between the same are determined on the basis of the specific use needing.
5. Sheet element according to one of the preceding claims, characterized in that the shape of the projecting elements is modified on the basis of the specific needing, being in any case necessary to make the connection with the main plane of the sheet element in such a way to have the outer view surface of the panel substantially flat.
6. Sheet element according to one of the preceding claims, characterized in that above the sheet element an outer shaped sheet for drawing the water, the snow and so on is coupled.
7. Sheet element according to one of the preceding claims, characterized in that between said sheet element and said upper sheet an insulating material, unflammable or not, is provided, e.g. polyurethane foam, mineral etc.
8. Sheet element according to one of the preceding claims, characterized in that above said projecting elements or ribs, transverse section bars is provided, placed at least in correspondence of the support points of the sheet element, upon which the upper sheet rests so as to create an air room.
9. Sheet element according to one of the preceding claims, characterized in that the number of section bars can be higher, placing some of them also in intermediate positions between the supports.
10. Self-supporting and finish sheet element to realize coverings and/or false ceilings according to anyone of the preceding claims, substantially as illustrated and described.

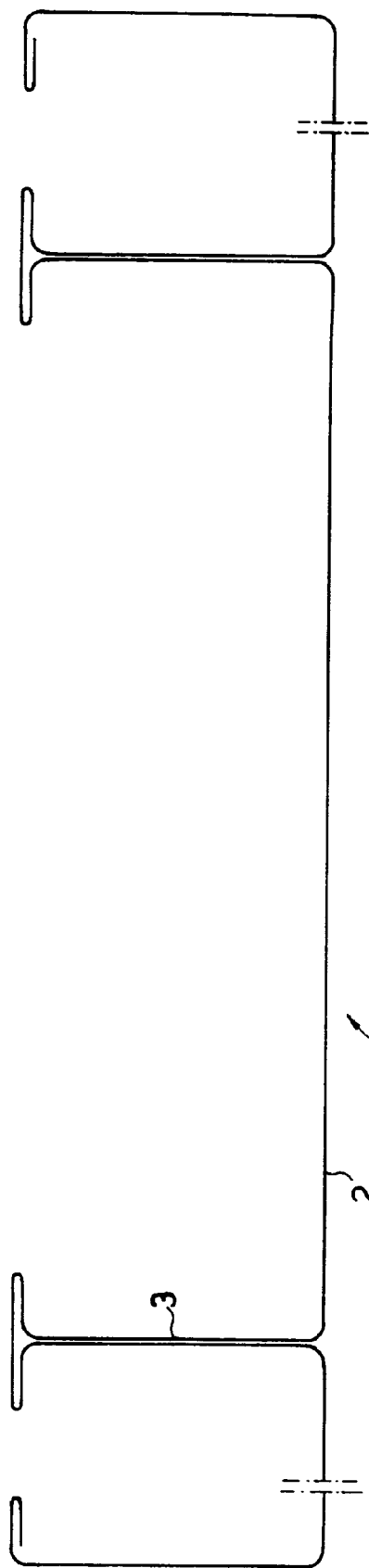


FIG. 1

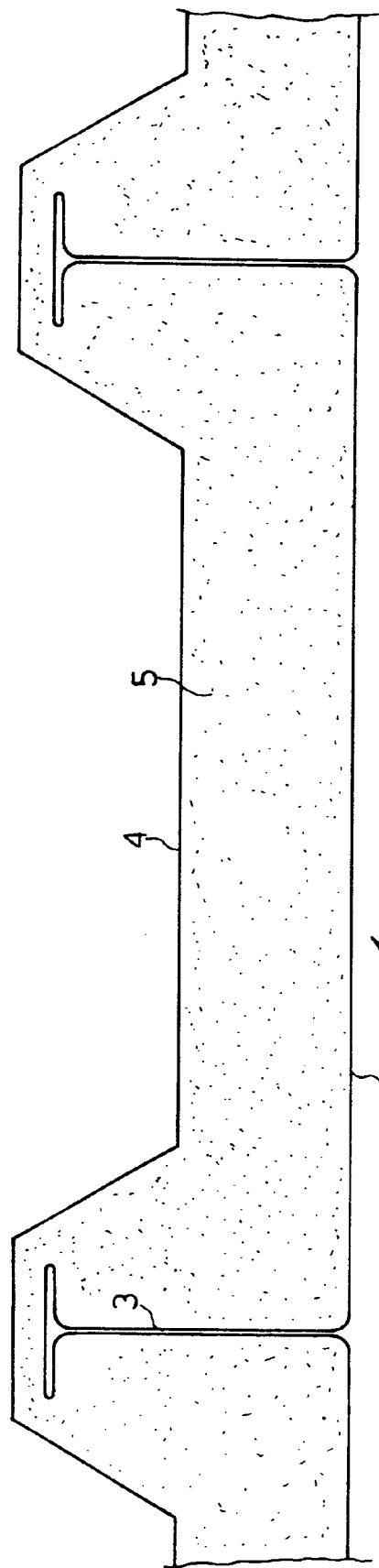


FIG. 2

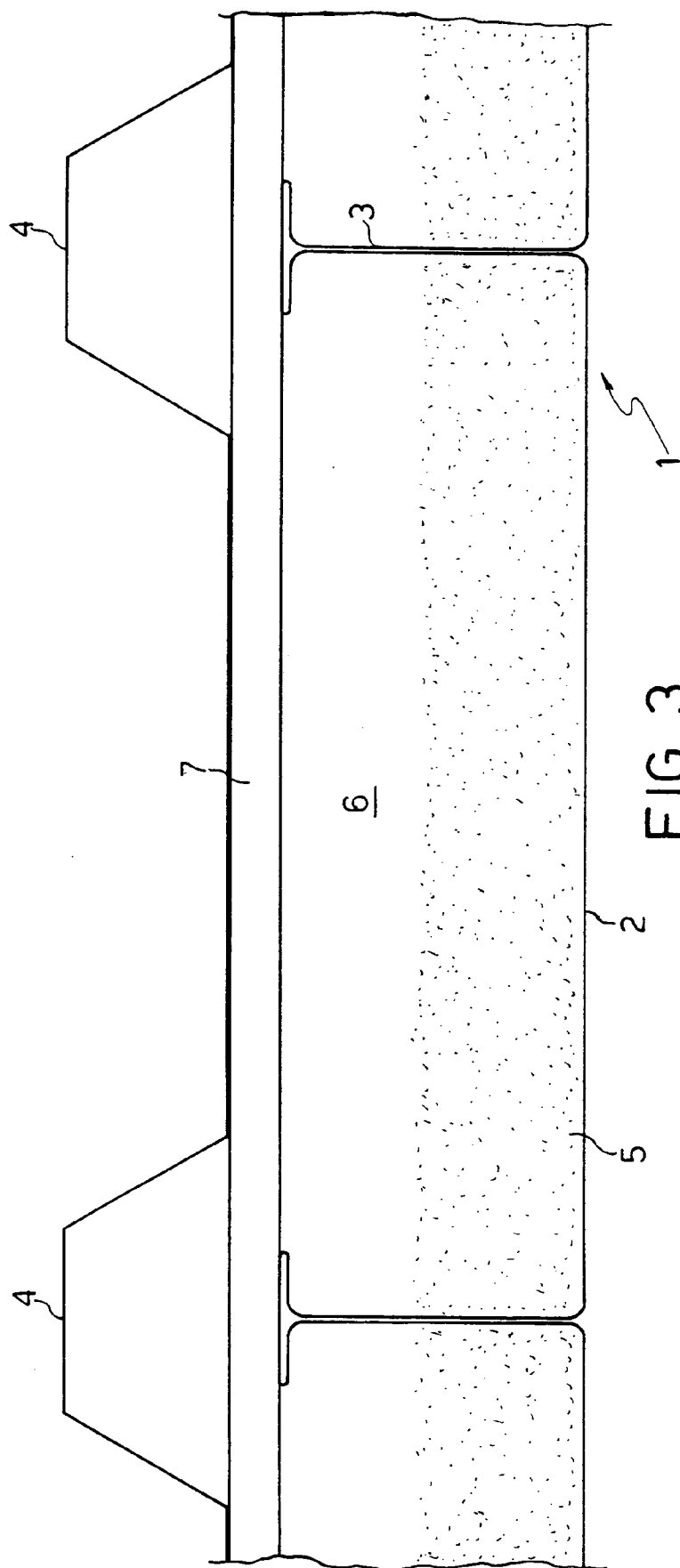


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 95830325.7
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)
X	FR - A - 2 429 304 (OBRINK) * Fig. 1,2,3 * --	1-5,10	E 04 F 13/12 E 04 D 3/35
X	GB - A - 2127/A.D.1903 (PALMER) * Fig. 7,8 * --	1,2,4, 5,10	
A	* Fig. 7,8 *	7	
X	DE - A - 3 136 046 (GLASER) * Fig. 1,2 * --	1,2,4, 5,6,8, 9,10	
X	EP - A - 0 275 145 (CROIZIER) * Fig. 1A,5; column 3, line 17 * --	1,2,4, 6-8,10	
X	GB - A - 1 025 175 (THE BRITISH ALUMINIUM COMP. LTD.) * Fig. 2; sheet 9 with rein- forcing channels and ribs * ----	1,2,4, 5,6,7, 10	TECHNICAL FIELDS SEARCHED (Int. Cl. 6) E 04 D E 04 F
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 14-11-1995	Examiner GLAUNACH
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</p>			

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