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### (54) Truss

(57) Truss comprising a pair of beams (1) connected by means of a reticulated structure comprising a plurality of diagonal bars (2), wherein one or both beams (1) consist of a metal section provided with a longitudinal groove (1b) facing the diagonal bars (2) and having a substantially rectangular cross-section, the width of said groove (1b) being substantially equal to the width of the diagonal bars (2) so that the ends of the latter can be introduced and fixed in the groove.

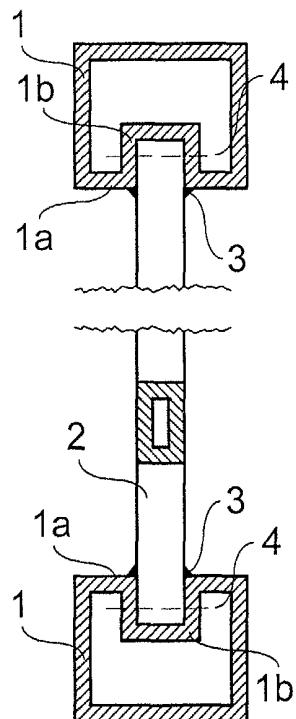


Fig. 2

## Description

**[0001]** The present invention relates to a truss, and in particular to a truss which can be employed as a cross-bar or portion of arc in the supporting structures of the movable coverings.

**[0002]** Known trusses comprise a pair of horizontal beams connected by means of a reticulated structure comprising a plurality of diagonal bars. The beams and the diagonal bars are generally made up of metal sections welded to each other. In particular, one or both beams include substantially rectangular metal sections whereby it is necessary to weld to the beams pairs of vertical metal plates or U-shaped portions of metal sections in order to contain laterally and to properly weld the ends of the diagonal bars, thus reinforcing the truss. The welding of these reinforcing members to the beams obviously increases the manufacturing time and cost of the truss, while decreasing its aesthetic value.

**[0003]** It is therefore an object of the present invention to provide a truss which is free from said disadvantages. Said object is achieved with a truss, the main features of which are disclosed in the first claim and other features are disclosed in the subsequent claims.

**[0004]** Thanks to the particular longitudinal groove of the beams, the diagonal bars can be directly introduced and fixed therein, so that the truss according to the present invention can be obtained in a simple and resistant way without the help of said reinforcing members. Furthermore, with this arrangement, the diagonal bars can be simply cut at right angle, since their joint with the beams is carried out through the side walls, thereby reducing the surfaces to be mutually welded, with a consequent reduction of manufacturing times and costs.

**[0005]** Another advantage of the truss according to the present invention is its better aesthetic appearance thanks to the hiding of the ends of the diagonal bars.

**[0006]** Further advantages and features of the truss according to the present invention will be clear to those skilled in the art from the following detailed and non-limiting description of an embodiment thereof with respect to the attached drawings, wherein:

- figure 1 shows a partial front view of the truss according to said embodiment; and
- figure 2 shows an enlarged cross-sectional side view of the truss of figure 1 according to plane II-II of figure 1.

**[0007]** Referring to said figures, there is seen that the truss according to the present embodiment of the invention comprises in a known way a pair of beams 1 connected by means of a reticulated structure comprising a plurality of diagonal bars 2 arranged so as to form a series of triangular openings.

**[0008]** According to the invention, one or both beams 1 consist of metal sections which have a cross-section,

for example with a substantially rectangular shape, with the surface 1 a facing the diagonal bars 2 provided with a longitudinal groove 1b having a substantially rectangular cross-section. The width of groove 1b is substantially equal to the width of the diagonal bars 2, so that the ends of the latter can be introduced in groove 1b and easily fixed therein, in particular by means of weldings 3 or bolts passing through holes formed along axis 4.

**[0009]** In the present embodiment, the cross-section of the diagonal bars 2 is substantially rectangular, but it is clear that in other embodiments it could be different, e.g. U-shaped. Moreover, in this embodiment the angles between a diagonal bar 2 and the adjacent bars are substantially right, whereas the angles between bars 2 and beams 1 may change according to the specific strength requirements.

**[0010]** In other embodiments of the invention, beams 1 could be not straight but rather curved, so that the resulting truss is also curved and can be used as a portion of a semicircular arc for coverings, for example of sports fields or protective coverings.

**[0011]** Possible additions and/or modifications may be made by those skilled in the art to the above-described and illustrated embodiment, yet without departing from the scope of the invention

## Claims

1. Truss comprising a pair of beams (1) connected by means of a reticulated structure comprising a plurality of diagonal bars (2), **characterized in that** one or both beams (1) consist of a metal section provided with a longitudinal groove (1b) facing the diagonal bars (2) and having a substantially rectangular cross-section, the width of said groove (1b) being substantially equal to the width of the diagonal bars (2) so that the ends of the latter can be introduced and fixed in the groove.
2. Truss according to the preceding claim, **characterized in that** the ends of the diagonal bars (2) are fixed in the longitudinal groove (1b) of the beams (1) by means of weldings (3).
3. Truss according to claim 1, **characterized in that** the ends of the diagonal bars (2) are fixed in the longitudinal groove (1b of the beams (1) by means of bolts.
4. Truss according to one of the preceding claims, **characterized in that** the angles between a diagonal bar (2) and the adjacent bars are substantially right.
5. Truss according to one of the preceding claims, **characterized in that** the beams (1) are curved.

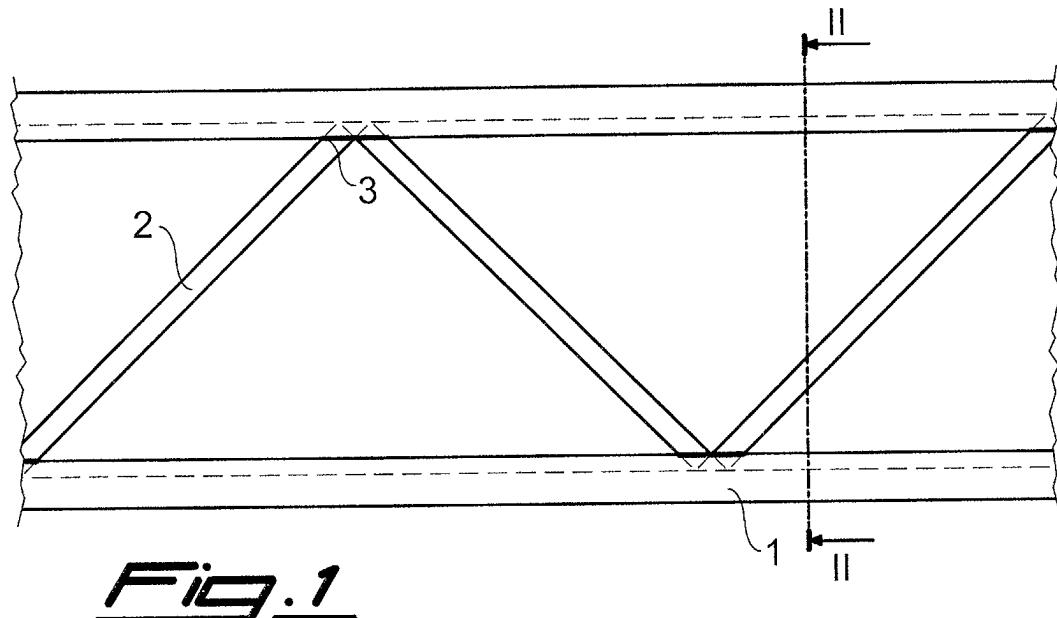


Fig. 1

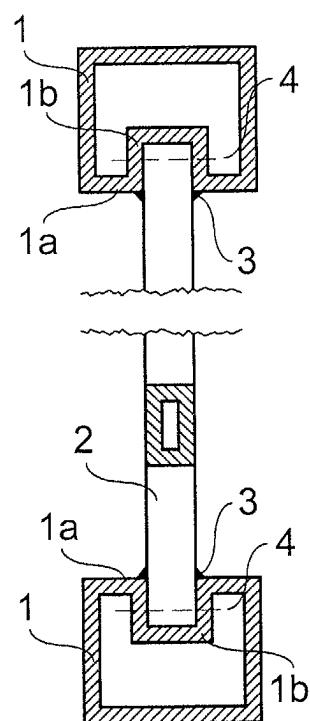


Fig. 2



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## EUROPEAN SEARCH REPORT

Application Number  
EP 02 42 5508

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
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Y	EP 1 111 151 A (TOTAL FABRICATI NS LTD) 27 June 2001 (2001-06-27) * column 8, line 28 – column 8, line 41 * * figures 1-5 *	2, 4, 5							
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)						
			E04C						
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 34%;">Examiner</td> </tr> <tr> <td>THE HAGUE</td> <td>23 October 2002</td> <td>Hendrickx, X</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	THE HAGUE	23 October 2002	Hendrickx, X
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THE HAGUE	23 October 2002	Hendrickx, X							
CATEGORY OF CITED DOCUMENTS		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							
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EP 02 42 5508

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