(54) Title: A BUMPER BEAM FOR A VEHICLE

(57) Abstract: A bumper beam in the form of an open hat beam with a central flange (11) pointing outwards has a transverse bulkhead (23) at one of its fastening portions (17). An internally threaded socket (22) is welded to the transverse bulkhead parallel with the bulkhead and protrudes through a hole (21) in the central flange (11) so that a tow eyelet can be screwed firmly into the socket when needed and thereafter be unscrewed.
A bumper beam for a vehicle

Technical field

The invention relates to a bumper beam with a threaded fastening socket for a threaded tow eyelet.

Object and brief description of the invention

The object of the invention is to provide at low cost a fastening for a tow eyelet which is stable and safe and does not weaken the bumper beam. This object is achieved when the bumper beam, at least in its fastening region, is of generally U-shaped cross-section with the crown pointing outwards and has a transverse bulkhead fastened there between the crown's sides, and the fastening socket is parallel with the bulkhead.

Brief description of the drawings depicting a preferred embodiment example of the invention

Figure 1 is a front view of a bumper beam according to the invention.

Figure 2 is a view from above of the bumper beam in Figure 1.

Figure 3 is a cross-section along the lines 3-3 in Figure 1 and Figure 4.

Figure 4 is a view of the area indicated by the arrows 4-4 in Figure 1.

Detailed description of depicted embodiment example

The drawings refer to a bumper beam for vehicles, e.g. passenger cars. It is made of high-strength sheet steel and has an open hat beam shape with a central flange 11, two webs 12,13 and two side flanges 14,15. The fastening portions 16,17 of the side
flanges 14,15 have fastening holes 18,19,20 by means of which the beam can be bolted firmly to loadbearing elements of the vehicle, usually to end plates on the vehicle's side rails or to crash boxes between the bumper and the side rails so that the crown of the hat beam points outwards. The hat beam is of varying cross-section along its length. The webs 12,13 are higher at the fastening portions than in the middle portion, as illustrated in Figure 2.

In the fastening portion 17, the hat beam's central flange 11 has a hole 21 through which an internally threaded fastening socket 22 extends so that a tow eyelet can be screwed firmly into the socket when needed and thereafter unscrewed when not needed. The fastening socket is welded firmly in a bulkhead 23 by longitudinal welds 24,25 along the socket. The bulkhead 23 is welded firmly in the hat beam by being welded to the two webs 12,13 by welds 26,27. These welds may extend along the whole of the webs but welds at the top and bottom may generally be sufficient. The socket 22 is welded firmly to the bulkhead 23 before the bulkhead is fitted and welded firmly in the hat beam. The bulkhead may be welded to the bottom of the beam, i.e. to the central flange.

The fastening portion 16 may also have a bulkhead as reinforcement even if it has no fastening socket for a tow eyelet.

The bumper beam need not have the shape of a hat beam but may be of some other shape with a generally U-shaped cross-section with the crown pointing outwards, at least at the fastening portion. It may have a sheet steel cover so as to be, at least partly, of closed cross-section despite the embodiment example depicted with a totally open cross-section. The invention may be applied to both the rear bumper of a vehicle and the forward bumper.
Claim

1. A bumper beam with a threaded fastening socket (22) for a threaded tow eyelet, characterised in that the bumper beam, at least in its fastening region (17), is of generally U-shaped cross-section with the crown (11-13) pointing outwards and has a transverse bulkhead (23) fastened there between the crown's sides (12,13), and the fastening socket (22) is parallel with the bulkhead.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: B60R, B60D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<tr>
<td>Y</td>
<td>DE 19902478 C1 (BENTELER AG), 27 July 2000 (27.07.2000), figure 1, abstract</td>
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<tr>
<td>Y</td>
<td>EP 1681208 A2 (BENTELER AUTOMOBILETECHNIK GMBH), 19 July 2006 (19.07.2006), figure 1, abstract</td>
<td>1</td>
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<tr>
<td>Y</td>
<td>DE 10359483 A1 (ISE INNOMOTIVE SYSTEMS EUROPE GMBH), 28 July 2005 (28.07.2005), figure 1, abstract</td>
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T " later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Date of the actual completion of the international search: 9 November 2007

Date of mailing of the international search report: 12-Vr 2007

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<table>
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<th>Category**</th>
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<tr>
<td>Y</td>
<td>WO 03080398 A1 (VALEO THERMIQUE MOTEUR), 2 October 2003 (02.10.2003), page 2, line 15 - line 20, figure 2</td>
<td>1</td>
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International patent classification (IPC)

**B60D 1/56** (2006.01)
**B60R 19/18** (2006.01)
**B60R 19/48** (2006.01)

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<tr>
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<td>02/10/2003</td>
<td>AU 2003244717 A 00/00/0000</td>
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<td>EP 1441951 A 04/08/2004</td>
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<td>EP 1487671 A 22/12/2004</td>
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<td>FR 2837762 A,B 03/10/2003</td>
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