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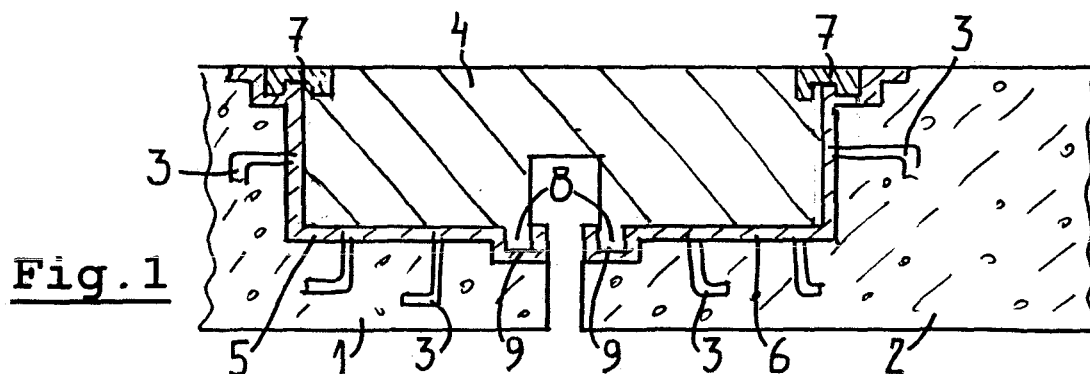
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(54) **Joint**

(57) A joint between two adjacent reinforced members (1,2) of a building construction, such as for example a bridge, is provided comprising a joint member (4) positioned between facing parts of said reinforced members

(1,2). The joint comprises clamping members (5,6) integrally connected to each of said reinforced members (1,2) at said facing parts thereof. Said clamping members (5,6) are capable of receiving therein the joint member (4) in a releasable manner.



Description

[0001] The invention relates to a joint between two adjacent reinforced members of a building construction, such as for example a bridge, comprising a joint member positioned between facing parts of said reinforced members.

[0002] According to the state of the art the joint member is integrally connected to the reinforced members, for example to the reinforcement thereof. At one hand this provides a very reliable and safe anchoring of the joint member to the adjacent reinforced members as is mandatory, for example, when the joint is part of a road bridge which is subject to frequent traffic passing thereover. At the other hand however, a joint is subject to wear and thus has a limited life span. After expiration of its life span it has to be renewed, which means removing the worn out joint member and replacing it by a new one. Due to the integral connection between the joint member and adjacent reinforced members such a removal and replacement is very difficult and extremely time consuming, leading to a long time obstruction of the building construction (such as a road bridge).

[0003] It is an object of the present invention to provide an improved joint of the type referred to above.

[0004] Thus, in accordance with the present invention a joint of the type referred to above is provided which is characterized by clamping members integrally connected to each of said reinforced members at said facing parts thereof, said clamping members being capable of receiving therein the joint member in a releasable manner.

[0005] At one hand the clamping members maintain the required reliable and safe anchoring of the joint member to the adjacent reinforced members. At the other hand, however, the clamping members enable a quick removal of the joint member when it has to be serviced or has to be replaced by a new joint member. In the case of a joint applied in a road bridge, for example, this means that the road bridge has to be closed for the traffic for a dramatically shorter period.

[0006] Preferably the clamping members are integrally connected to the reinforcement of the respective reinforced members. This leads to a very reliable and safe position of these clamping means and thus the joint member.

[0007] Further it is possible that the clamping members are provided with releasable locking means for locking the joint member to the clamping members. This provides a first way of releasably connecting the joint member to the clamping members.

[0008] For example, in accordance with one embodiment of the joint according to the present invention the locking means comprise removable locking fingers bridging the interface between the clamping members and the joint member. Such locking members may be mounted by appropriate means, for example bolts or alike.

[0009] Preferably, then, the clamping members and

the joint member are provided with recesses for housing said locking fingers. Especially when the joint is part of a road bridge this is advantageous, because then the upper surface of the complete joint can remain without any protruding parts which otherwise would hinder the traffic.

[0010] A second way of releasably connecting the joint member to the clamping members is provided by an embodiment of the joint according to the present invention, wherein the clamping members together define a receiving space for the joint member with a more outward portion which is smaller than at least a part of a more inward portion of said receiving space and wherein the joint member has a shape in correspondence with the receiving space and is sufficiently flexible for at least partially passing through said more outward portion of the receiving space. As a result a joint member once positioned in the receiving space is maintained in its position by a form fit without the need of additional locking means (it is noted, however, that this way of connecting the joint member to the clamping members may be combined with the first way mentioned above, i.e. using releasable locking means).

[0011] Most preferably, then, said more outward portion is an entry opening of the receiving space. In most cases this means that the more outward, smaller portion defines the outermost part of the receiving space and may be coplanar with outer faces of the adjacent reinforced members of the building construction.

[0012] However, it is possible too that this more outward, smaller portion lies further inwardly of the receiving space.

[0013] To improve the positional stability of the joint member it is possible that the clamping members and joint member are provided with cooperating projections and recesses.

[0014] Further embodiments of the joint are subject of the subclaims.

[0015] Hereinafter the invention will be elucidated while referring to the drawings in which

Figures 1-3 show schematically a cross sectional view of three different embodiments of a joint in accordance with the present invention, and

Figure 4 shows on a larger scale a detail of figure 2.

[0016] Firstly referring to figure 1 part of a building construction (such as for example a road bridge) is shown, having two adjacent reinforced members 1 and 2. The reinforced members 1 and 2 are provided with a reinforcement 3 only indicated schematically.

[0017] Figure 1 shows a joint region of the building construction, where the two reinforced members 1 and 2 face each other without directly touching.

[0018] A joint member 4 is positioned between facing parts of the reinforced members 1 and 2. Clamping members 5 and 6 are integrally connected to the respective reinforced members 1 and 2. For example, as shown in

the figures, the clamping members 5 and 6 are integrally connected to the reinforcement 3 of the respective reinforced members 1 and 2.

[0019] In figure 1 the joint member 4 is releasably connected to the clamping members 5 and 6 by means of locking fingers 7 bridging the interface between the clamping members 5, 6 and joint member 4.

[0020] In figure 1 said locking fingers 7 are received in recesses of the clamping members 5 and 6 and recesses of the joint member 4, such that the upper surface of the locking fingers 7 is coplanar with the upper surface of the reinforced members 1 and 2 of the building construction. The locking fingers are removable, for example by being attached to the clamping members 5 and 6 by bolts (not illustrated).

[0021] For removing the joint member 4 the locking fingers 7 are released, such that the joint member 4 may be lifted out of the clamping members 5 and 6. After re-installing the joint member 4 (or a new joint member 4) the locking fingers 7 can be reinstalled for again locking the joint member 4.

[0022] Finally it is illustrated in figure 1, that the joint member 4 comprises projections 8 cooperating with corresponding recesses 9 of the clamping members 5 and 6.

[0023] Figure 2 shows an alternative embodiment, again with two reinforced members 1 and 2 and clamping members 5 and 6. In this embodiment the joint member 4 comprises recesses 10 and the clamping members 5 and 6 comprise corresponding projections 11. Further, now, no locking fingers are provided; in this embodiment the clamping members 5 and 6 together define a receiving space for the joint member 4 with an upper entry opening which is smaller than at least a part of a more inward portion of the receiving space. Or, in other words, the receiving space, as illustrated in figure 2, converges in an upward direction. The joint member 4 then has a shape in correspondence with the receiving space and is sufficiently flexible (compressible) for (completely or at least partially) passing through said smaller entry opening of the receiving space. After being positioned into the receiving space the joint member 4 again returns (expands) to its original shape and is maintained then in a safe manner within the receiving space.

[0024] Referring to figure 3 still another embodiment of the joint is illustrated. Basically, this joint combines features of the joints illustrated in figures 1 and 2. Particularly, locking fingers 7 are provided cooperating with clamping members 5 and 6 and with joint member 4, whereas further the joint member 4 at its lower part is provided with enlarged projections 12 received in corresponding recesses 13 of the clamping members 5 and 6. Or, in other words, the clamping members 5 and 6 define a receiving space having a more outward portion (at the upper end of the recesses 13) which is smaller than at least a part of a more inward portion of said receiving space. Due to this shape of the receiving space (and the corresponding shape of the joint member 4) the joint member 4 is safely locked within the clamping mem-

bers 5, 6 after being positioned therein. Of course, also in this embodiment the joint member 4 should be flexible enough for entering the recesses 13 with its projections 12.

[0025] Figure 4, which on a larger scale shows the detail indicated in figure 2 by a dotted circle, illustrates the use of a sealing substance 14 between the clamping member 5 and joint member 4. This sealing substance for example may be an epoxy resin which does not stick to the clamping member and joint member.

[0026] The clamping members 5 and 6 can be made of a metal plate, but other materials are conceivable too, when appropriate.

[0027] The invention is not limited to the embodiments described before, which may be varied widely within the scope of the invention as defined by the appending claims.

Claims

1. Joint between two adjacent reinforced members of a building construction, such as for example a bridge, comprising a joint member positioned between facing parts of said reinforced members, **characterized by** clamping members integrally connected to each of said reinforced members at said facing parts thereof, said clamping members being capable of receiving therein the joint member in a releasable manner.
2. Joint according to claim 1, wherein the clamping members are integrally connected to the reinforcement of the respective reinforced members.
3. Joint according to claim 1 or 2, wherein the clamping members are provided with releasable locking means for locking the joint member to the clamping members.
4. Joint according to claim 3, wherein the locking means comprise removable locking fingers bridging the interface between the clamping members and the joint member.
5. Joint according to claim 4, wherein the clamping members and the joint member are provided with recesses for housing said locking fingers.
6. Joint according to any of the previous claims, wherein the clamping members together define a receiving space for the joint member with a more outward portion which is smaller than at least a part of a more inward portion of said receiving space and wherein the joint member has a shape in correspondence with the receiving space and is sufficiently flexible for at least partially passing through said more outward portion of the receiving space.

7. Joint according to claim 6, wherein said more outward portion is an entry opening of the receiving space.
8. Joint according to any of the previous claims, wherein the clamping members and joint member are provided with cooperating projections and recesses. 5
9. Joint according to any of the previous claims, wherein a sealing substance is provided between the clamping members and the joint member. 10
10. Joint according to claim 9, wherein said sealing substance is an epoxy resin which does not stick to the clamping members and joint member. 15
11. Joint according to any of the previous claims, wherein the clamping members are made of metal plate.

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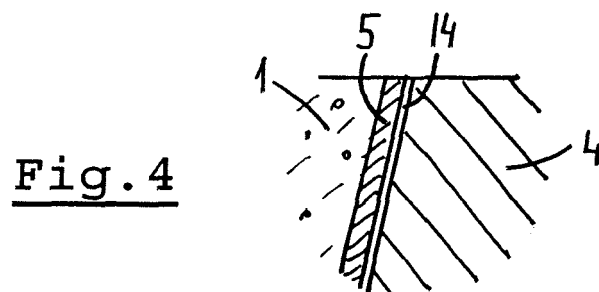
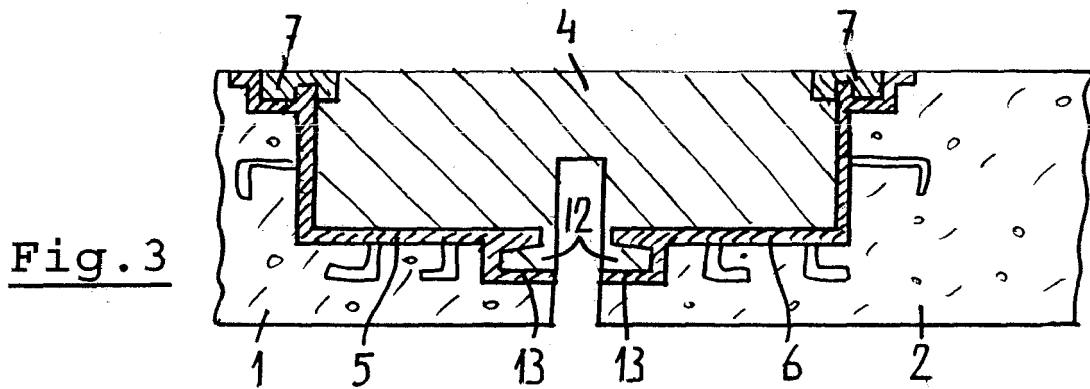
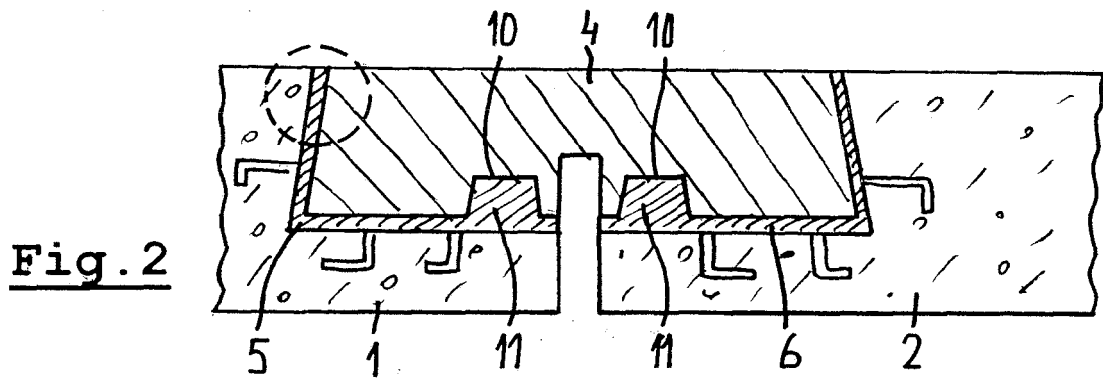
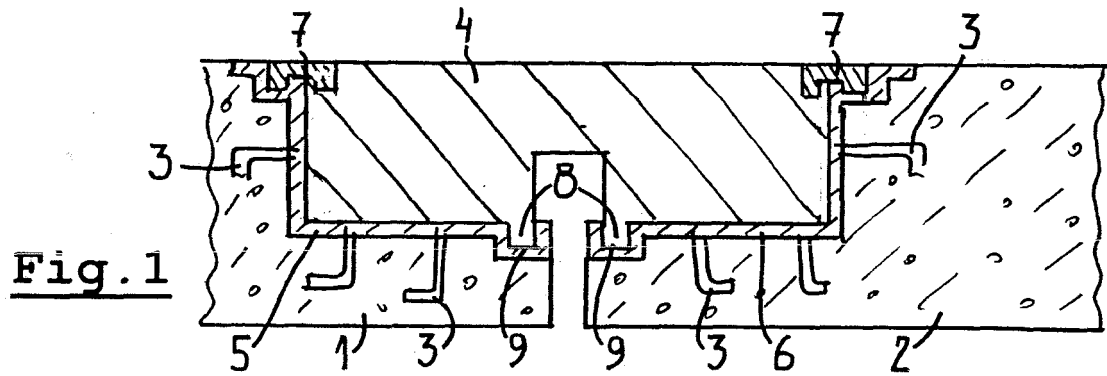
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European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 4539

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 January 2008	Examiner Rosborough, John
CATEGORY OF CITED DOCUMENTS 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 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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 11 4539

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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