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(54) **ATTACHMENT OF ASSEMBLY CONSTRUCTION ELEMENTS**

BEFESTIGUNG FÜR MONTAGEBAUELEMENTE

FIXATION D'ENSEMBLE D'ÉLÉMENTS DE CONSTRUCTION

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EP 2 191 082 B1

Description

Technology field

[0001] Attaching of prefabricated construction elements, connecting of sandwich panels, attaching elements.

Technical problem

[0002] Prefabricated construction elements which represent elements of the envelope or internal structure of the buildings are exposed to working of external loads such as wind or temperature difference, said loads transferred to load carrying structure over attaching elements, said attaching elements providing appropriate connectivity on one hand, and provide for appropriate elasticity of attachment on the other side.

[0003] This invention is related to improvement of attaching of structural elements with emphasis on attaching of sandwich panels with metal or other type of envelope with hidden or visible attaching elements.

State of the art

[0004] Prefabricated construction elements represent element of the envelope or internal structure of the building, and are most commonly manufactured from prefabricated elements of one-layered or sandwich construction, said elements axially and/or transversally composed into construction sections of larger dimensions. The construction elements are attached to load carrying structure of steel, concrete or wooden columns or walls using system of attaching elements which are attached in visible or invisible manner with attachment means. For equalization of deviations one can use equalization substructure of load carrying supporting element which are point- or line-wise attached onto the basic load carrying construction (structure) with aid of attachment elements. Due to exposure of prefabricated construction elements to the outside loads which are then transferred to the load carrying structure via attachment element one needs to provide for appropriate connection and because of static and dilatation requirements appropriate elasticity of connection.

[0005] There are several patents describing general background of the invention, none of which actually solves the technical problem at hand:

Patent application WO98/10151 A describes an improved cladding board mounting system for mounting cladding boards adjacent a surface to be concealed.

Patent DE 17 99 420 U describes setup for attachment of panel-like walls to firmly standing walls

Patent application DE 35 05 335 A1 describes cov-

ering of the walls for noise reduction for use in various types of industrial establishments.

Patent DE 86 16 775 U1 describes covering of walls constructed of flat rear ventilated panels

Patent DE 296 19 956 U1 describes setup for attachment of profiles, in particular for masonry, wall, bottom or deck coverings or bookshelves attachment with attaching elements connected to the profiles.

[0006] Available solutions to the problem of attaching provide for partially movable attachment of assembly element on intermediate supports, however the system of attaching causes ex-centre and shocking loads of assembly construction elements and load carrying construction, and results in prolonged and complicated assembly.

Description of new invention

[0007] The subject of this invention describes new way of attaching of assembly elements onto the buildings with emphasizing connection of sandwich panels with metal or other type of envelope using hidden or visible connection elements.

[0008] The subject of invention is advanced solution of system of connection of assembly of construction elements in case of multi-field system of assembly providing for partial ability to move elements for static reasons on intermediate supports while providing for simple and fast assembly of elements onto the load carrying construction.

[0009] The described problems are solved by an assembly according to claim 1.

[0010] The solution of connection of elements relevant for this invention is further realized using particular form of connecting element with applied elastic layer, said layer connected to assembly scaffolding using attaching bolts or any other type of attachment. In case of wind force or temperature difference directed against load carrying construction the assembly construction element leans on support element onto which the elastic layer is applied, said layer damping the strokes and alleviate the transfer of sound from assembly construction element onto the load carrying construction. In case of wind activity or temperature difference in direction from the load carrying construction the attaching profile over elastic layer leans onto the support element from the inner side on condition that free deformation of assembly element is exceeded.

[0011] Below the essence of the invention is described in detail describing embodiments and attached figures, said figures forming part of this patent application, and presenting:

Fig. 1 shows assembly construction element 1, load carrying construction 2, attachment profile 3.

Fig. 2 shows assembly construction element 1, load carrying construction 2, attachment profile 3, support element 4, attachment bolt 5, reinforcement of assembly construction element 6, elastic layer 7, attachment element 8.

Fig. 3 shows assembly construction element 1, load carrying construction 2, attachment profile 3, support element 4, attachment bolt 5, reinforcement of assembly construction element 6.

Fig. 4 shows assembly construction element 1, load carrying construction 2, attachment profile 3, attachment bolt 5, reinforcement of assembly construction element 6.

Fig. 5 shows load carrying construction 2, support element 4, attachment element 8.

[0012] In embodiment shown in the figures the assembly construction elements 1 are transversely connected into the building assembly (Fig. 1). The attachment of assembly construction elements is realized using particular form of attachment profile 3 (Fig. 2) with appropriately played elastic layer 7 which is by attachment bolts 5 through reinforcement of assembly construction element 6 attached to assembly construction element 1. In case of wind force or temperature difference operating in direction against load carrying construction the assembly building element 1 leans against support element 4, said support element 4 carrying elastic layer 7, said layer damping the strokes and alleviating the transfer of sound from assembly element 1 via support element 4 onto the load carrying construction 2. In case of wind or temperature difference in direction from the load carrying construction 2 the attachment profile 3 through elastic layer 7 leans against support element 4 from the inside part on condition that free deformation of assembly element 1 is exceeded.

[0013] The solution shown (Fig. 3) due to symmetric construction of attachment profile 3 and support element 4 provides for uniform transfer of loads, provides for good damping of shocks by using built-into elastic layers and reduces the transfer of sound via construction.

[0014] The fundamental advantage of new solution is fast assembly (Fig. 3, Fig. 4) as pre-assembly of attachment elements using attachment bolts 5 or other types of attachment means is enabled onto the assembly construction element 1 in most suitable construction circumstances - during manufacturing or on ground floor of the construction site rather than on assembly position of construction element as usual with other solutions. The attachment profile 3 which is already placed on the assembly construction element 1 can be due to particularly formed cut-outs on support element 4 (Fig. 5) easily put into inside of the support element 4 (Fig. 3., Fig. 4) and then the assembly construction element can be put using system of attachment of construction elements into final

position, this action easily achievable because of free-play between assembly element 1 and outer surface of support element 4 and attachment profile 3 and inner surface of support element 4.

[0015] The assembly construction elements 1 can be inter-assembled in axial or transversal direction, or combined between axial and transversal assembly. At the same time the number of intermediate supports and/or load carrying constructions can be optional and does not limit the essence of this invention.

[0016] The embodiment shown in the figures is implemented provided that internal conformity exists, said conformity meaning that support element 4 embraces the attachment profile 3 from the outside.

[0017] It is self evident that the described invention can be implemented in different embodiments within the scope of the appended claims.

20 Claims

1. Assembly comprising an assembly construction (1) element and attachment elements comprising an attachment profile (3) with applied elastic layer (7) attached onto said assembly construction element (1), further comprising a support element (4) attachable to a load carrying construction (2) **characterized in that** said attachment profile (3) is placed on the assembly construction element (1) and is due to particularly made cut-outs on the support element (4) placed inside said support element (4).
2. The assembly according to claim 1 wherein there is a free-play the between assembly construction element (1) and the outside surface of the support element (4), and also between the attachment profile (3) and the inner surface of support element (4).
3. The assembly according to claims 1 or 2 wherein the attachment of elements is implemented by providing of internal conformity, said internal conformity meaning that the support element (4) embraces the attachment profile (3) from the outside.

Patentansprüche

1. Die Montage, zusammengesetzt aus dem Montagekonstruktionselement (1) und den Befestigungselementen, die zusammen gesetzt sind aus dem Befestigungsprofil (3) mit einer anwendbaren elastischen Schicht (7), befestigt auf das Montagekonstruktionselement (1), weiter aufgebaut aus einem Unterstützungselement (4), das befestigt werden kann auf die lasttragende Konstruktion (2), **dadurch gekennzeichnet, dass** das Befestigungsprofil (3) auf dem Montagekonstruktionselement (1) positioniert ist und hinsichtlich der speziell ausgearbeiteten Aus-

schnitte auf dem Unterstützungselement (4) positioniert ist im Innern des Unterstützungselements (4).

2. Die Montage aus dem Anspruch 1, worin ein freier Lauf besteht zwischen dem Montagekonstruktionselement (1) und der Außenseite des Unterstützungselements (4) und auch zwischen dem Befestigungsprofil (3) und der Innenseite des Unterstützungselements (4). 5
3. Die Montage aus den Ansprüchen 1 und 2, worin die Befestigung der Elemente mit dem Versichern der internen Konformität implementiert ist, wo die innere Konformität bedeutet, dass das Unterstützungselement (4) das Befestigungsprofil (3) von der Außenseite umklammert. 10 15

Revendications

1. Un assemblage comprenant un élément de construction à lever (1) et des éléments de fixation dont un profil de fixation (3) avec caoutchoucs de protection plaqués (7), fixé sur ledit élément de construction à lever (1), comprenant de plus un élément de support (4) pouvant être fixé à un porteur de charge de la construction (2) **caractérisé par le fait que** ledit profil de fixation (3) est placé sur l'élément de construction à lever (1) et prévoit un dimensionnement particulièrement élaboré de l'élément de support (4) ainsi qu'à l'intérieur de celui-ci. 20 25 30
2. Conformément à la revendication 1, l'assemblage comprend un jeu libre entre l'élément de construction à lever (1) et la surface extérieure de l'élément de support (4), et également entre le profil de fixation (3) et la surface intérieure de l'élément de support (4). 35
3. Conformément aux revendications 1 ou 2, l'assemblage comprend une fixation des éléments qui est effectuée par un agencement interne, ledit agencement interne revenant à ce que l'élément de support (4) entoure le profil de fixation (3) de l'extérieur. 40 45

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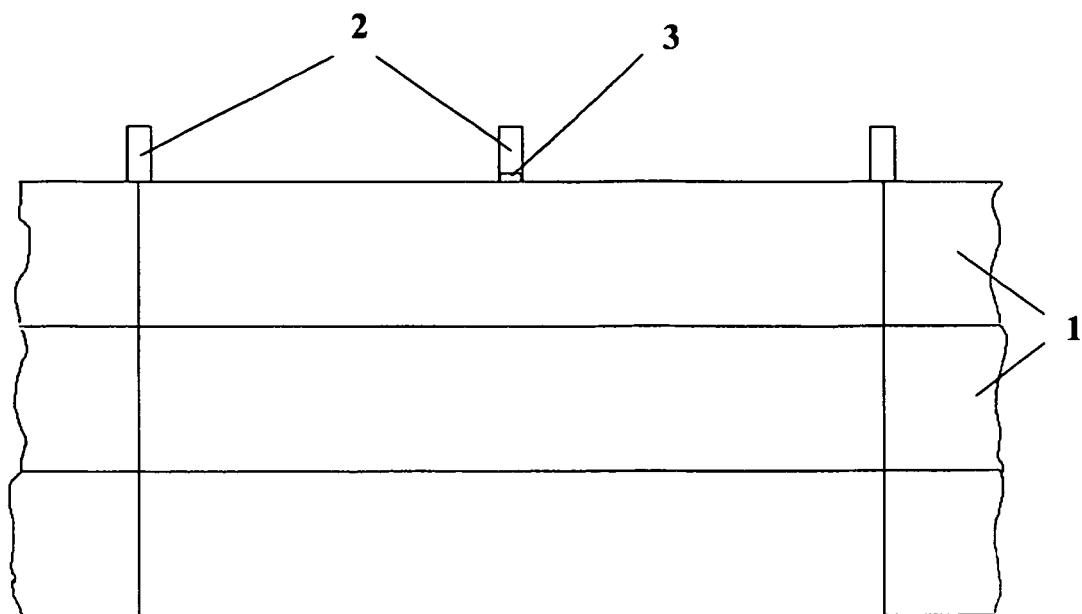


Fig. 1

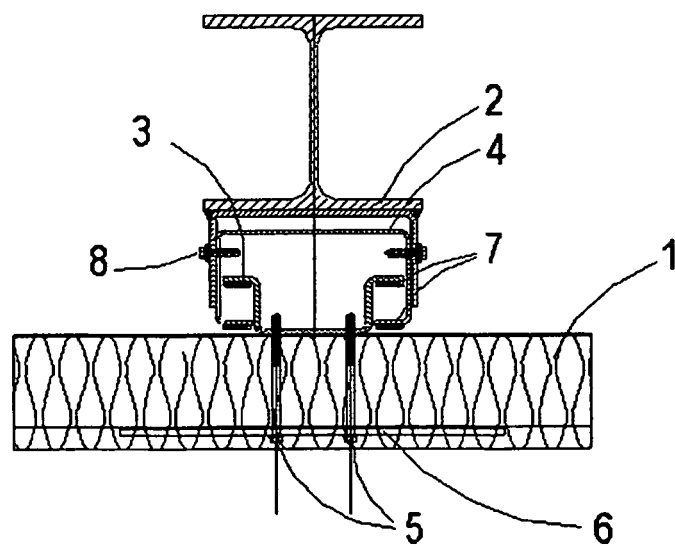


Fig. 2

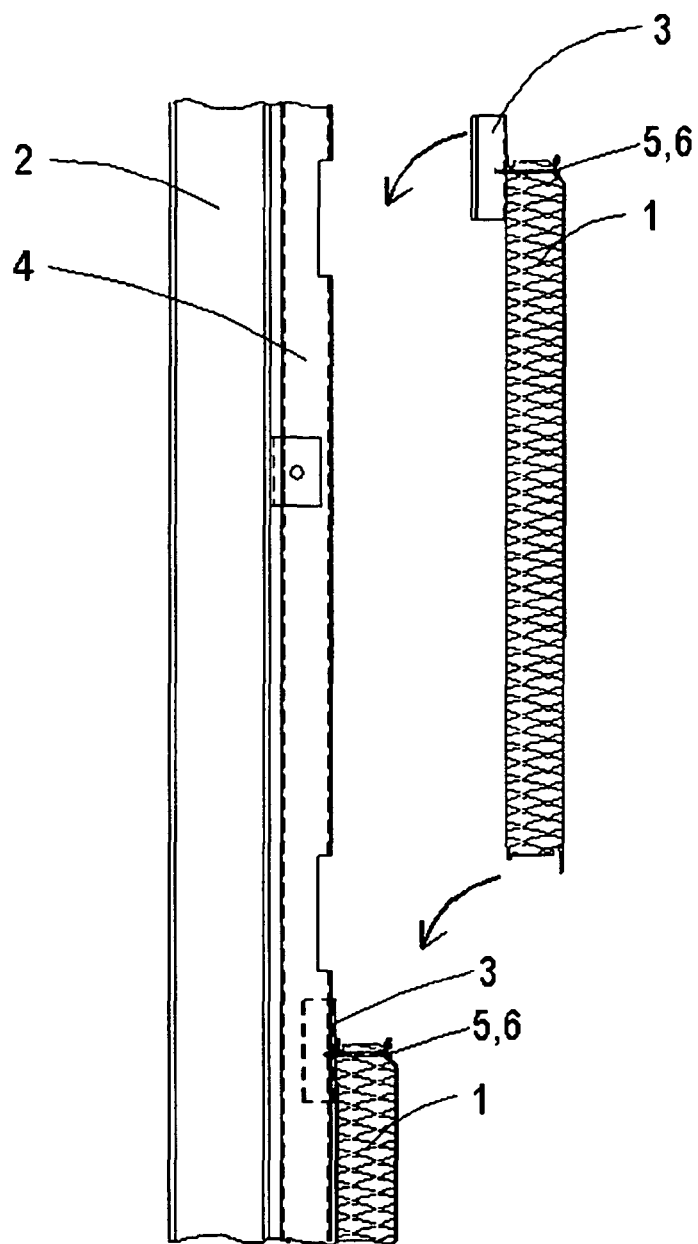


Fig. 3

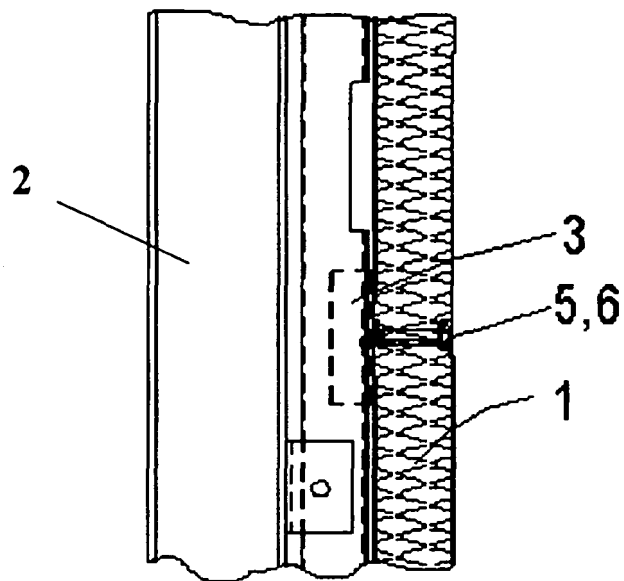


Fig. 4

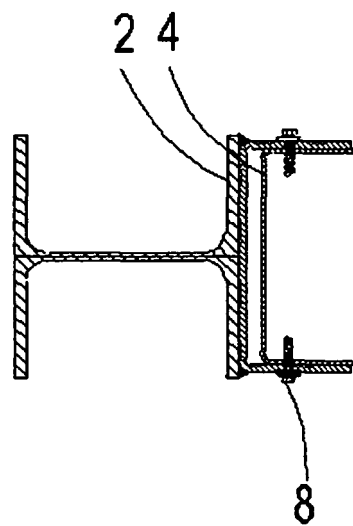


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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