(19) DANMARK

(10) **DK/EP 2476811 T3**

Patent- og Varemærkestyrelsen

(12) Oversættelse af europæisk patentskrift

(51) Int.Cl.: ***E 04 B 2/74 (2006.01)*** ***E 04 B 1/58 (2006.01)*** *E 04 B 1/24 (2006.01)*

(45) Oversættelsen bekendtgjort den: **2017-04-10**

(80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2017-01-11**

(86) Europæisk ansøgning nr.: **11190321.7**

(86) Europæisk indleveringsdag: **2011-11-23**

(87) Den europæiske ansøgnings publiceringsdag: **2012-07-18**

(30) Prioritet: **2011-01-17 DE 202011000119 U**

(84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

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(54) Benævnelse: **Forbindelseselement**

(56) Fremdragne publikationer:
GB-A- 2 084 629
US-A- 2 796 158
US-A- 3 492 766
US-A- 6 119 430

A CONNECTING ELEMENT

The invention relates to a connecting element, preferably for use in dry construction for forming support-crossbar connections, wherein the connecting element substantially comprises a C-profile rail, wherein the C-profile rail of the connecting element is dimensioned in such a way that it forms a clamping fit with the conventional C-profile of a support and/or a crossbar in that the connecting element, like a slip-on bushing, can be pushed onto or inserted into the C-profile rail of a support or a crossbar in an interlocking manner, and wherein a front side of the C-profile rail of the connecting element is open.

Such a connecting element is known from the prior art from GB 2 084 629. A height-adjustable support beam is known from this specification, comprising a C-profile on which a connecting element that is also formed as a C-profile can be placed in such a way that it is mounted on the one hand within the terms of a telescopic extension of the support beam in a longitudinal displaceable manner and the two C-profiles are dimensioned on the other hand in such a way that in the region of the mutually adjoining walls of the C-profiles involved in the connection a frictional blocking is formed so that a first preliminary fixing of the two C-profiles occurs in their respective relative position.

Furthermore, an apparatus for building a wall construction is known from the prior art from the US patent US 2,796,158, especially of room dividers, in which two C-profiles are also mounted in a longitudinal displaceable manner with respect to each other, wherein the two longitudinal profiles can be fixed to each other in their respective relative positions by means of slots via a screw-and-nut connection penetrating the two slots, which slots overlap each other in the inserted position.

The subject matters of the two citations require additional elements in order to be connected to a frame construction for building a support structure for example.

It is also known from the prior art from US 6,100 19,430 to provide a longitudinally adjustable support beam in which a further C-profile within the terms of an extension element is pushed onto the C-profile of a support beam.

A similar connecting element for forming a support-crossbar connection in dry construction is known from the prior art from US 3,492,766 A.

Dry construction differs from conventional construction in such a way that no water-containing building materials such as concrete or mortar are used for building components and therefore the usual drying times can be avoided. In this context, room structures, walls and also exterior constructions are produced by joining industrial semi-finished goods. Dry construction is generally faster and often more cost-effective than the production of constructions with conventional masonry. Dry constructions are especially used to install room-in-room systems such as dividing walls for example, but also entire office or studio installations or wet rooms, either right from the start or retroactively, in larger room structures. The room cells produced by dry construction in this manner can be formed with one or two stories and can be constructed as self-supporting structures. Since they usually need not fulfil any supporting functions in a building, they are not subjected to comparable loads as in other building structures. It is understood that mixed constructions can also be considered within the scope of dry construction, i.e. constructions which are based both on conventional masonry and also on dry construction components.

In the case of the aforementioned room-in-room constructions, there is a problem in that the dry construction needs to be

integrated in already existing room structures. It is frequently necessary in this case to accept existing building deficiencies such as unevenness in the installation ground, irregular walls or ceiling constructions, and the dry constructions are practically integrated in already existing structures. This usually requires complex special constructions in the dry construction or extensive, mostly undesirable reworking of the existing building structure. Since it is the purpose of using dry constructions to design rapid and simple solutions, this should be avoided if possible.

The invention is therefore based on the object of providing a connecting element which also in the case of already existing irregularities in the installation ground or the adjoining walls allows making a respective levelling and adjustment in a simple manner on site without changing the dry construction per se.

The solution of this object is achieved by using a connecting element with the features of the main claim. Advantageous embodiments of the connecting element are shown in the dependent claims 2 to 5.

The connecting element substantially comprises a C-profile rail with an open and a closed front side. The closed front side is formed by a planar cover plate which protrudes via an excess portion beyond the C-profile rail element on the open side, wherein the cover plate, apart from that, corresponds in its width to the width of the C-profile rail of the connecting element. The C-profile rail is dimensioned in such a way that it can be inserted like a slip-on bushing onto a conventional C-profile for forming a support or a crossbar within a dry construction. The maximum slip-on depth of the connecting element is limited by the cover plate of the connecting element which is arranged on the front side of the C-profile rail opposite the open side. The connecting element can therefore be arranged in a freely displaceable manner in the intermediate range of a minimal

insertion depth which is necessary for the proper connection between the connecting element and the respective support or crossbar and the stop formed by the stop cover plate, and can thus ensure a continuous extension or shortening of the respective support or the respective crossbar.

In the installation position, the connecting element can be pushed from below onto a support which is installed in an at least approximately vertical manner so that the cover plate practically represents the base plate of the support. In the event that all vertical supports of a respective room construction are accordingly provided with connecting elements, local irregularities in the installation surface of the room construction can be compensated by the respective positioning of the connecting elements relative to the vertical supports of the room construction.

The connecting elements can also be inserted alternatively on the top side on the supports of a structure which are installed at least in an approximately vertical manner, and thus ensure at the top side a compensation for differences in length of the supports, so that the support means for the crossbars to be connected to the supports and to be installed at substantially the same horizontal installation position are arranged at the same height.

In an advantageous embodiment, the C-profile rail and/or the cover plate is provided with through holes, so that the connecting element can be fixed in its respective slip-on position relative to the respective crossbar or the respective support, e.g. by forming a simple bolted connection.

In a yet a further advantageous further development, the through holes are each arranged in pairs at a distance from each other so that a double connection, e.g. by forming a simple bolted connection, can be produced and better fixing of the connecting

element in the respectively desired relative position to the respective crossbar or the respective support is thus ensured.

The invention will be explained below by reference to an embodiment which is only shown schematically in the drawings, wherein:

Fig. 1 shows a perspective view of a connecting element inserted onto a support;

Fig. 2 shows a connecting element according to Fig. 1 in a unique position in a perspective rear view;

Fig. 3 shows a perspective view of a room construction in dry construction with supports and crossbars by using the connecting elements shown in Figs. 1 and 2;

Fig. 4 shows a partial element designated in the drawing with IV;

Fig. 5 shows a partial element designated in Fig. 3 with V;

Fig. 6 shows a partial element designated in Fig. 3 with VI;

Fig. 7 shows a partial element designated in Fig. 3 with VII.

Fig. 1 shows a perspective view of a support 1 shown in the vertical installation position, on which a connecting element 2 is inserted in an interlocking way in the manner of an adapter. The connecting element 2 consists on its part of a C-profile rail 3 which is dimensioned in such a way that it can be inserted into or slipped onto the support 1, which is also formed as a C-profile rail, in an interlocking manner by forming a press fit. The C-profile rail 3 comprises an open front side of the connecting element 2 which marks the insertion opening 4. The front side of the connecting element 2 which is opposite the insertion opening 4 is the respective support height for the T-

connection shown in Fig. 6 which is produced by respective fixing in this position relative to the support 1.

The detailed view in Fig. 7 shows that the respective connecting elements 2 can also be used when a double support is formed from two C-profile elements. In this case, a connecting element 2, 2' is inserted in an interlocking manner onto each support 1, 1', wherein the cover plates 5 (not shown in closer detail) of the connecting elements 2, 2' each form the base elements of the double support formed by the two supports 1, 1', so that a respective double support can be levelled with respect to its height by using the connecting elements 2.

A connecting element is thus described above which facilitates the construction and assembly of room constructions 12, especially such that need to be introduced into existing room constructions, in such a way that easier connection of the supports 1 and crossbars 13 used in this context is enabled by means of the connecting elements 2 and any existing irregularities or other constructive defects can be compensated with ease.

List of reference numerals

1	Support
2	Connecting element
3	C-profile rail
4	Insertion opening
5	Cover plate
6	Protruding portion
7, 7'	Through-hole
10	Base plate
11	Connecting borehole
12	Room construction
13	Crossbar

P A T E N T K R A V

1. Forbindelseselement, fortrinsvis til anvendelse i mørtelfrit elementbyggeri til at danne støtte-tværstangsforbindelser, hvor forbindelseselementet (2) i det væsentlige omfatter en C-profilskinne (3), hvor forbindelseselementets (2) C-profilskinne (3) er dimensioneret således, at den sammen med en støttes (1) og/eller en tværstangs (13) traditionelle C-profil danner en klempasning, idet forbindelseselementet (2) som en påsætningsmuffe formsluttende kan skydes eller sættes på en støttes (1) eller en tværstangs (13) C-profilskinne, og hvor en forside af forbindelseselementets (2) C-profilskinne (3) er åben, **kendetegnet ved, at** den anden forside af forbindelseselementets (2) C-profilskinne (3) er lukket med en plan afslutningsplade (5), hvor bredden af afslutningspladen (5) svarer til den af forbindelseselementets (2) C-profilskinne (3), men hvor afslutningspladen (5) i dennes længderetning danner et udhæng (6) over den åbne side af forbindelseselementets (2) C-profilskinne (3), hvor klempasningen i præmonterings forstand giver en første provisorisk fiksering af en støtte (1) og/eller en støtte-tværstangsforbindelse, inden forbindelseselementet (2) derefter ved hjælp af forbindelsesboringer (11) i en bundplade (10) af forbindelseselementet (2) hhv. gennemgangsboringer (7, 7') i forbindelseselementets (2) afslutningsplade (5) kan fastgøres i sin relativposition i forhold til støttens (1) eller tværstangens (13) C-profil, og støtten (1) og/eller støtte-tværstangsforbindelsen dermed kan fikseres i den i hvert enkelt tilfælde tilstræbte ønskede position, hvor afslutningspladen (5), når forbindelseselementet (2) påsættes på støtten (1)

på undersiden, danner et bundelement, og når forbindelseselementet (2) påsættes på støtten (1) på oversiden, danner en understøtning.

2. Forbindelseselement ifølge krav 1, **kendetegnet ved, at** gennemgangs- hhv. forbindelsesboringerne (7, 7', 11) hver især parvis er anbragt ved siden af hinanden til dannelse af en dobbeltforbindelse.

3. Forbindelseselement ifølge et af de foregående krav, **kendetegnet ved, at** forbindelseselementet (2) i monteret stilling er skudt på en vertikal afstivet støtte (1) på undersiden således, at forbindelseselementets (2) afslutningsplade (5) udgør bundpladen af denne støtte (1).

4. Forbindelseselement ifølge et af de foregående krav 1 til 2, **kendetegnet ved, at** forbindelseselementet (2) i monteret stilling er skudt på en vertikal indsat støtte (1) på oversiden således, at forbindelseselementets (2) afslutningsplade (5) udgør en understøtning til den i det mindste tilnærmelsesvis horisontalt monterede tværstang (13), der skal forbindes med denne støtte (1).

5. Forbindelseselement ifølge krav 3 eller 4, **kendetegnet ved, at** der i afhængighed af, hvorvidt forbindelseselementet (2) skydes på støtten (1), er tilvejebragt en nivellering af støtten (1) som sådan eller den af støtten (1) givne understøtning til tværstangen (13), der skal forbindes med støtten (1), og forbindelsen ved hjælp af gennemgangsboringerne (7, 7') kan fikseres i den i hvert enkelt tilfælde ønskede forbindelsesposition, fortrinsvis ved hjælp af en skrueforbindelse.

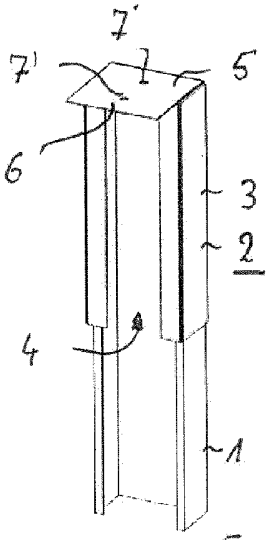


Fig. 1

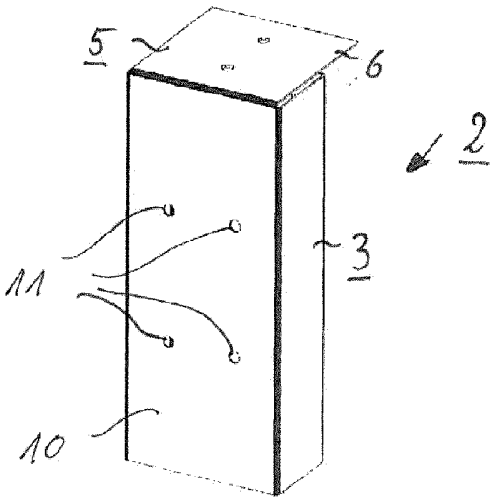


Fig. 2

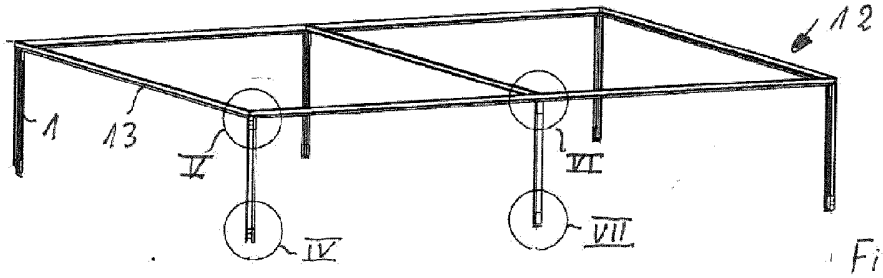


Fig. 3

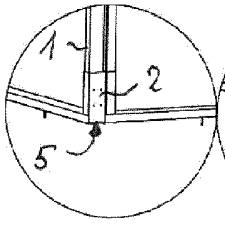


Fig. 4

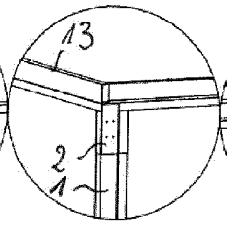


Fig. 5

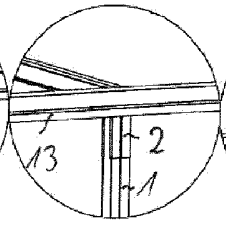


Fig. 6

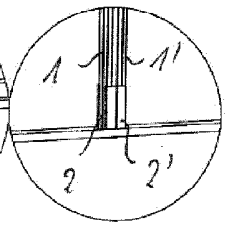


Fig. 7