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(54) **METHOD FOR CONNECTING BUILDING BLOCKS**

VERFAHREN ZUM VERBINDEN VON BAUBLÖCKEN

PROCEDE DE CONNECTION DE BLOCS DE CONSTRUCTION

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## Description

**[0001]** This invention relates to a method for joining successive premanufactured construction blocks, the construction blocks having two plane major faces and four edge faces and a certain thickness, the construction blocks being joined along an edge face of each block, abutting each other, by a profile having a web and flanges and at least the flanges being made of sheet metal.

**[0002]** Such a known method is described further in the following with reference to accompanying fig. 1. However, this known method includes the attaching of two identical profiles, which makes the mounting more time-consuming and more expensive.

**[0003]** Further known method of the kind mentioned above is described in the dissertation paper No. 268, Faculty of Building Technology, the Royal Swedish Institute of Technology.

**[0004]** US-A-2142305 discloses two construction blocks to be joined along their edge faces by means of clips, the edge face of each construction block, before the clips are attached, being provided with metal members. The clips are "hooked" around these metal members on the major faces of the blocks. This method must include several clips in order to attain firmness between the two blocks in the longitudinal direction of their edge faces.

**[0005]** The invention is directed towards improvements of the prior art in order to reduce the number of profiles for joining construction blocks and obtain higher security of the supporting function against the combination of longitudinal and lateral forces. The new method also seeks to provide good strength when a load is applied to the composite construction in the longitudinal direction of the sheet profile.

**[0006]** Accordingly, the present invention provides a method as defined in claim 1, preferred embodiments of which being defined in the dependent claims.

**[0007]** An embodiment of the invention as well as variations thereof will be described below with reference to the accompanying drawings.

Figure 1 shows a schematic perspective view of construction blocks, which are joined according to a prior art method.

Figure 2 shows a schematic perspective view of two construction blocks, which are joined according to the invention.

Figure 3 shows a perspective view of the sheet profile to be used with the method.

Figure 4 shows a cross-section through two construction blocks, which are joined according to the invention.

Figure 5 shows a modification of a step of joining

two construction blocks according to the invention.

**[0008]** Accordingly, figure 1 shows two construction blocks, e.g. of expanded plastic, which are joined according to a prior art method. The construction blocks 1 and 2 are arranged so that each block has an edge face abutting an edge face of the other block along the broken line 3. A major face 4 and 4' of each of the construction blocks 1 and 2, respectively, is shown. Over the broken line 3 on the major faces a U-shaped beam 3' has been placed, the flanges 6 and 6' of which have been pushed into slots in the major faces of the construction blocks 4 and 4', respectively. On the opposite major faces a corresponding U-shaped beam has been inserted.

Thus, by means of the two U-shaped beams the two construction blocks 1 and 2 are mechanically joined so that it is not possible to pull them away from each other. The joint of the two construction blocks can be improved by gluing the webs of the U-shaped profiles against the major faces. This is prior art.

**[0009]** In figure 2 the method according to the invention is shown. As before the two construction blocks 4 and 5 are placed against each other along the broken line 3, thus having two opposite edge faces close to each other. Between the edge faces the web 7 of a sheet profile 8 is now positioned. This sheet profile 8 has an approximately Z-shaped cross-section. A flange 9, extending to the left in this figure from a longitudinal edge of the web 7, is abutting the major face 5. At its free edge the flange is bent inwards into the construction block, so that a flap 10 is formed. This flap engages a slot in the major side 5 in the block 2. From the opposite longitudinal edge of the web 7 a flange 11 is extending, which abuts the rear major face of the block 1 in accordance with figure 2. This flange 11 also has a bent flap 12, which is positioned in a slot in the rear major face of the block 1. Thereby the two blocks are joined by means of the sheet profile, but it is possible that the blocks turn with respect to each other. Normally, however, the blocks are erected with the sheet profile standing upright, when the walls of a building are erected, and then, the blocks are supported by their bottom faces in a U-shaped profile, or the like. The blocks can be further stabilised either by means of gluing the edge faces against the web 7 of the sheet profile, or by means of some kind of screw joints arranged in such a manner, that screws extend obliquely through the blocks from one major face and into the web of the sheet profile.

**[0010]** In figure 3 there now is shown a perspective view of the sheet profile according to the invention. It is evident that the web 7 has the two flanges 9 and 11, respectively, which extend from the web at an angle of 90° and in opposite directions from the respective edge of the web. Each flange has its end edge bent in such a manner that a longitudinal flap 10 and 12, respectively, is formed. It is the two flaps 10 and 12, which are inserted into slots that initially have been made in the major faces of the blocks. The dimensions of the sheet profile

are preferably such that the height of the web corresponds to the thickness of the respective block, and the length of the web corresponds to the length of the edge face of the block, i.e. normally the height of the construction block when it forms a wall in a building. The width of the flanges 9 and 11 is approximately half of the height of the web, and the extension of the flaps down into the constructions blocks is approximately one third of the height of the web. The values stated above are contemplated guideline values.

**[0011]** To reduce the thermal conduction transverse the longitudinal extension of the web triangular apertures 13 can be made. These may be arranged in such a manner, that they are positioned in zigzag, so that straight lines of material from one edge of the profile to the other edge are interrupted.

**[0012]** Figure 4 shows a cross section through the joint area between two construction blocks 1 and 2. This picture shows more clearly the slots, which are arranged in the major faces of the construction blocks for the insertion of the flaps 10 and 12, respectively. The broken line 14 illustrates schematically how a screw joint can be arranged to enhance the connection between the blocks, e.g. in case the construction blocks are positioned in a horizontal plane and e.g. form a ceiling in a building.

**[0013]** In figure 5 two construction blocks are shown in separated positions just before they will be brought together. In the construction block 1 the incision 15 is shown, into which the flap 10 shall be inserted. The bottom side of the construction blocks is covered with a cover plate 16, which, in the right end of the figure, covers the sheet profile 8, which already has been fitted there, but leaves the major face free in that area, where the flap 10 of the other sheet profile will be inserted. Thus the cover plate 16 extends as far as to the incision 15.

**[0014]** On the top face of the block 1 there is a flexible cover plate 17 making a weld joint possible. In its right end in the figure it covers the flange 11 of the sheet profile and extends a certain distance beyond the major face, so that when the blocks are brought together it will cover the web of the sheet profile on the adjacent block. In this way a very tight building construction is obtained, which also is stable and easily processed to give the construction a good surface finish.

## Claims

1. Method for joining successive premanufactured construction blocks, the construction blocks having two plane major faces and four edge faces, and a certain thickness, the construction blocks being joined along an edge face of each block, abutting each other, by a profile (8) having a web (8) and flanges (9, 11), and at least the flanges being made of sheet metal, **characterized in** positioning one web side (7) of a single profile (8) directly against

and along a free edge face of a first one of the pre-manufactured construction blocks by that the height of the web is made to correspond to the thickness of the block, mechanically engaging a first flange (9) protruding perpendicular a small distance from the web (7) in the major face of the first construction block by that a flap (10) of the flange (9) being inserted in the major face, whereby the length of the web is made to correspond to the length of the edge face of the block, bringing one edge face of a second one of the construction blocks directly against the other side of the web, and mechanically engaging a second flange (11) protruding perpendicularly in a direction opposite to said first flange (9) from the web (7) in a second major face of the second construction block on an opposite side with respect to the engaged major face of the first construction block, by that a flap (12) of the second flange (11) being inserted in the second major face.

2. Method according to claim 1, wherein the flanges (9, 11) are made to engage into the major faces by means of portions of the flanges, which are folded or punched and extended in parallel with the plane of said web.
3. Method according to claim 1, **characterized in that** at least one major face of the construction block is covered by a cover plate (17), so that it covers the attached profile but exposes an area, in which the profile of the adjacent construction block is to engage.
4. Method according to claim 1, **characterized in that** at least one major area of the construction block is covered by a flexible plate (17), so that it covers the attached profile and extends beyond the major face to cover the profile of the adjacent construction block.

## Patentansprüche

1. Verfahren zum Verbinden aufeinander folgender Fertigteilblöcke, wobei die Fertigteilblöcke zwei ebene Hauptflächen und vier Kantenflächen sowie eine gewisse Dicke aufweisen, und die Fertigteilblöcke entlang einer Kantenfläche eines jedes Blockes, die gegeneinander gestoßen sind, durch ein Profil (8) verbunden werden, welches einen Steg (8) und Wangen (9, 11) aufweist, und zumindest die Wangen aus Metallblech bestehen, **gekennzeichnet durch** eine der Stegseiten (7) eines einzelnen Profils (8) wird direkt gegen und entlang einer freien Kantenfläche eines ersten der Fertigteilblöcke positioniert, wobei die Höhe des Steges mit der Dicke des Blockes übereinstimmt, eine erste Wange (9), die senk-

- recht um eine geringe Strecke aus dem Steg (7) vorsteht, wird mit der Hauptfläche des ersten Fertigteilblockes in Eingriff gebracht, und zwar **dadurch**, dass eine Klappe (10) der Wange (9) in die Hauptfläche eingesetzt wird, wobei die Länge des Steges mit der Länge der Kantenfläche des Blockes übereinstimmt, eine der Kantenflächen eines zweiten der Fertigteilblöcke wird direkt gegen die andere Seite des Steges zur Anlage gebracht, und eine zweite Wange (11), die vom Steg (7) in Richtung entgegengesetzt zur ersten Wange (9) senkrecht vorsteht, wird in einer zweiten Hauptfläche des zweiten Fertigteilblockes auf einer entgegengesetzten Seite bezüglich der im Eingriff befindlichen Hauptfläche des ersten Fertigteilblockes mechanisch in Eingriff gebracht, indem eine Klappe (12) der zweiten Wange (11) in die zweite Hauptfläche eingesetzt wird.
2. Verfahren nach Anspruch 1, bei welchem die Wangen (9, 11) mit den Hauptflächen mittels Abschnitten der Wangen in Eingriff gebracht werden, welche umgefaltet oder gestanzt sind und sich parallel zur Ebene des Steges erstrecken.
3. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** mindestens eine Hauptfläche des Fertigteilblockes von einer Abdeckungsplatte (17) bedeckt ist, so dass diese das angebrachte Profil abdeckt, jedoch eine Zone freilässt, in welcher das Profil des benachbarten Fertigteilblockes in Eingriff kommen soll.
4. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** mindestens eine Hauptfläche des Fertigteilblockes durch eine flexible Platte (17) abgedeckt ist, so dass diese das angebrachte Profil abdeckt und sich über die Hauptfläche hinaus erstreckt, um das Profil des benachbarten Konstruktionsblockes abzudecken.
- pendiculairement et d'une petite distance à partir de l'âme (7), dans la face principale du premier bloc de construction par insertion d'un rabat (10) de l'aile (9) dans la face principale, la longueur de l'âme étant prévue pour correspondre à la longueur de la face de bord du bloc ; on place une face de bord d'un deuxième des blocs de construction directement contre l'autre face de l'âme ; et on engage mécaniquement une deuxième aile (11), qui s'étend perpendiculairement dans une direction opposée à la dite première aile (9) à partir de l'âme (7), dans une deuxième face principale du deuxième bloc de construction sur un côté opposé par rapport à la face principale engagée du premier bloc de construction, par insertion d'un rabat (12) de la deuxième aile (11) dans la deuxième face principale.
2. Procédé selon la revendication 1, dans lequel les ailes (9, 11) sont prévues pour s'engager dans les faces principales au moyen de portions des ailes, qui sont pliées ou estampées et s'étendent parallèlement au plan de la dite âme.
3. Procédé selon la revendication 1, **caractérisé en ce qu'**au moins une face principale du bloc de construction est couverte par une plaque de couverture (17), de sorte que celle-ci couvre le profilé attaché mais découvre une région dans laquelle le profilé du bloc de construction adjacent doit s'engager.
4. Procédé selon la revendication 1, **caractérisé en ce qu'**au moins une face principale du bloc de construction est couverte par une plaque flexible (17), de sorte que celle-ci couvre le profilé attaché et s'étende au-delà de la face principale pour couvrir le profilé du bloc de construction adjacent.

## Revendications

1. Procédé de connexion de blocs de construction préfabriqués successifs, les blocs de construction ayant deux faces principales planes et quatre faces de bord, et une certaine épaisseur, les blocs de construction étant reliés le long d'une face de bord de chaque bloc, mutuellement en butée, par un profilé (8) ayant une âme (7) et des ailes (9, 11), et au moins les ailes étant en tôle de métal, **caractérisé en ce qu'**on place une face de l'âme (7) d'un profilé unique (8) directement contre et le long d'une face de bord libre d'un premier des blocs de construction préfabriqués, la hauteur de l'âme étant prévue pour correspondre à l'épaisseur du bloc ; on engage mécaniquement une première aile (9), qui s'étend per-

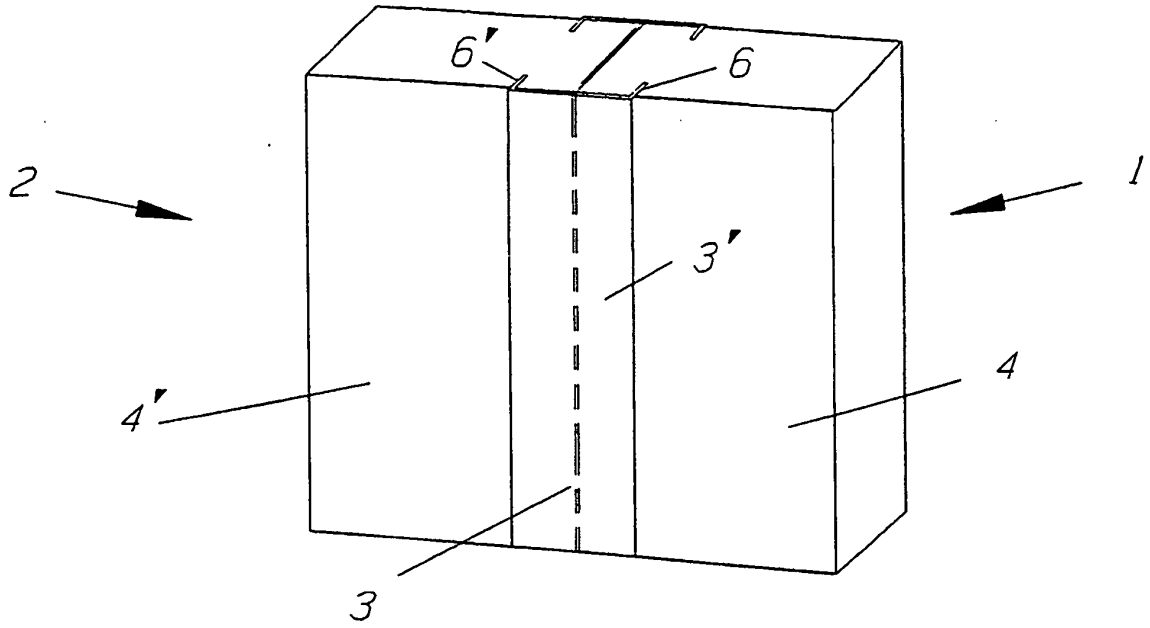


Fig. 1

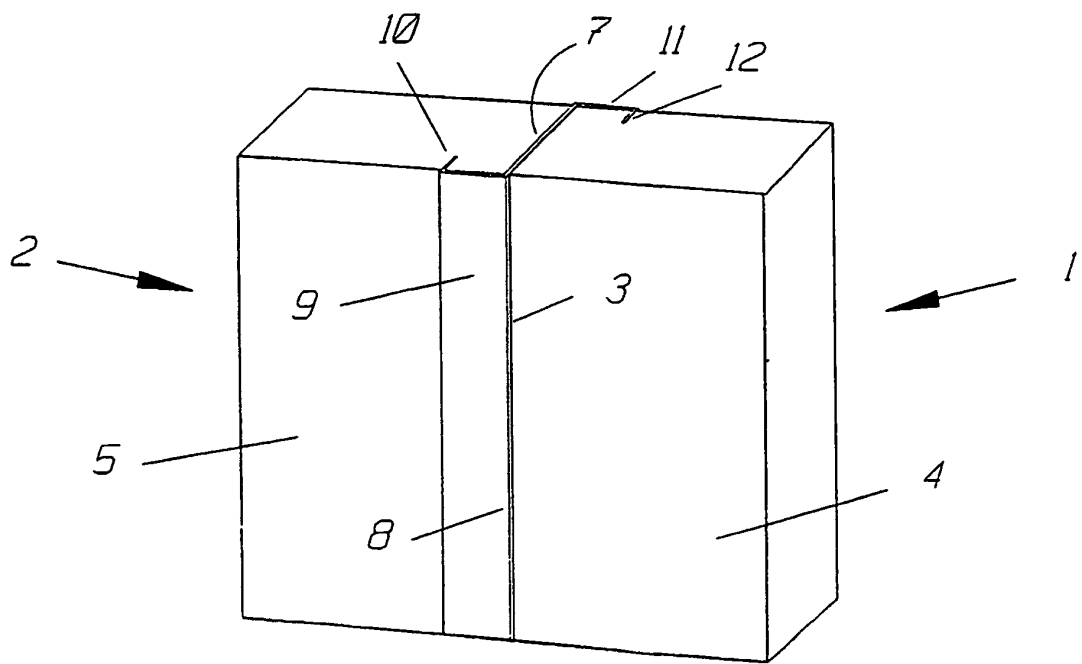


Fig. 2

