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54 A system of coupling means for the junction of prefabricated building elements.

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DE-A-2 010 667
DE-A-2 857 450
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Description

The present invention relates to a coupling device for joining pre-manufactured building elements, comprising a flat rectangular strip to be laid into a groove formed in aligned edges of adjacent building elements which are to be joined.

Such a coupling device to be used for walls of an exhibition booth, is known from DE-A-2 010 667.

The coupling devices according to the present invention are accessories used for the construction of dwelling-houses, offices, industrial buildings and schools, with the aid of pre-manufactured elements.

Using such devices with the pre-manufactured elements has the advantage that, in the case of good standardization of said elements, a fast and price-saving operation can be reached.

Moreover finishing off is more rapid and more profitable than that with conventional building techniques, since plumbing, conduit-pipes, etc. can be comprised beforehand in the building elements to be joined together. Therefore the field of application of such coupling devices is extending rapidly.

If elements of good quality are put into practice, the stability will be excellent, whilst the weight is lower and distributed more evenly upon the soil, so that less critical requirements are to be met with the foundation of the building.

Although this method of constructing is a durable one, there still exists the possibility of dismantling, such that this way of building is particularly appropriate for durable as well as for temporary buildings.

Working-methods for constructing with several pre-manufactured parts of small and large dimensions are known. Working in the building industry with parts of restricted sizes is of advantage because no expensive hoisting apparatus is needed. For this reason such parts also offer good possibilities in developing countries.

In European patent 093 735 methods and parts have also been described, in which compact modular elements provided with coupling devices in a standardized manner are connected in a sequence defined in advance.

These modular building-elements are provided with rebates at the narrow edges of same, into which fitting templates are put, the templates being provided with apertures into which fitting bushes are inserted ensuring the connection, such that a precise alignment is obtained, while stresses within the materials are obviated. Similar systems without such coupling devices are also known, but these have the disadvantage that an accurate alignment cannot be reached.

This is perceived particularly if the construction is performed by less experienced labour.

The system as described in the state of the art as mentioned has been developed further, in order to enable the realization of difficult junctions, such as in corners, roof constructions, and

the like, in an efficient and easy manner with good control of fitting, positioning and alignment.

The coupling device according to the present invention is characterized in that the coupling device further comprises a shorter second strip, whose one axial end is welded along a part of the axial line of one or both major surfaces of the first strip, such that the second strip extends perpendicularly to said surface of the first strip, in that the opposite axial end of the second strip is provided with a pin-shaped member extending substantially parallel with the axial line of the first strip and projecting from the edges of the second strip to serve as fitting nibs, and in that both strips are made of steel and are provided with apertures for receiving fitting bushes, whereby in use the second strip is received in rebates provided in facing edges of adjacent building elements to be joined, the fitting nibs being received in drilled apertures.

The device is constructed in such a manner, that said compact modular elements can be connected to each other in different ways, but always preserving considerable accuracy of alignment.

The flat steel strips so combined have one or several apertures in an axial line parallel to the welding seam for insertion of fitting bushes.

The coupling device according to the invention fits into the rebates of the building elements to be connected and enable a connection with fitting bushes.

In the flat strips there is an aperture corresponding with a fitting point for inserting a fitting bush, having a length which is sufficient for a stress-free connection of two building elements.

With this coupling device building elements can be connected to each other in a straight line. They are also suitable for connecting large block or slab-shaped building elements, such as wall plates for inner or outer walls, as well as for floor, flat-roof and oblique-roof parts.

The coupling device according to the present invention is further described and explained on the basis of the annexed figures.

Figures 1 through 5 demonstrate the embodiments of the invention.

Figure 1 shows a coupling device for wall elements put in place at a fitting plate on a storey floor.

Figure 2 shows a coupling device for two floor elements upon one wall element.

Figure 3 shows a coupling device for two wall elements put in place at a storey floor.

Figure 4 shows a coupling device for two wall elements and two floor elements.

Figure 5 shows a coupling device for two wall elements and four floor elements.

In these figures, (1) is the first flat steel strip, (2) is the second flat steel strip connected with the first along an axial line, (3) is the weld seam of the connection, (4) is the pin-shaped fitting nib, and (5) is an aperture for a fitting bush (6).

Figure 6 shows a schematic drawing of the use of the coupling device according to the invention.

In this figure, (1) is the first flat steel strip too, (2)

is the perpendicularly connected second flat steel strip, while (3) is the welding seam, (4) is the pin-shaped fitting nib, and (5) indicates one of the apertures into which the fitting bush (6) is put. (7) and (8) are the plates or building elements to be joined. (9) are the rebates.

Experiments have shown, that the connection so obtained affords a good stability for large as well as for small building elements.

Claim

A coupling device for joining pre-manufactured building elements (7, 8), comprising a flat rectangular strip (1) to be laid into a groove formed in aligned edges of adjacent building elements to be joined, characterized in that the coupling device further comprises a shorter second strip (2), whose one axial end is welded along a part of the axial line of one or both major surfaces of the first strip (1), such that the second strip (2) extends perpendicularly to said surface of the first strip, in that the opposite axial end of the second strip (2) is provided with a pin-shaped member extending substantially parallel with the axial line of the first strip (1) and projecting from the edges of the second strip to serve as fitting nibs (4), and in that both strips (1, 2) are made of steel and are provided with apertures (5) for receiving fitting bushes (6), whereby in use the second strip (2) is received in rebates (9), provided in facing edges of adjacent building elements to be joined, the fitting nibs being received in drilled apertures.

Patentanspruch

Ein Verbindungselement zum Zusammenfügen von Fertigbauteilen (7, 8), wozu es eine flache rechteckige Lehre (1) besitzt, die in eine Nute in längsgerichteten Kanten von anliegenden Bauteilen gelegt werden muss, welche damit zusammen zu fügen sind, dadurch gekennzeichnet, dass das Verbindungselement zusätzlich versehen ist mit einer kürzeren zweiten Lehre (2), von welcher ein achsiales Ende an einen Teil der Achse von einer oder von beiden grösseren Oberflächen der erst-

genannten Lehre (1) entlang geschweisst ist, sodass die zweite Lehre (2) sich senkrecht zur Oberfläche der erstgenannten Lehre erhebt, wobei das andere achsiale Ende der zweiten Lehre (2) mit einem stiftförmigen Teil versehen ist, welcher genau parallel zur Achse der erstgenannten Lehre (1) verläuft, und an den Enden der zweiten Lehre herausragt, sodass Stäbchen (4) zum Einpassen gebildet sind, und wobei beide Lehren (1, 2) aus Stahl bestehen und mit Bohrungen (5) versehen sind, in welche Führungsmuffen (6) passen, und die zweite Lehre (2) in Nuten (9) eingelegt wird, die in angrenzenden Kanten von anliegenden Bauteilen angebracht sind, welche zusammengefügt werden sollen, indem die Stäbchen (4) zum Einpassen in gebohrte Vertiefungen eingefügt werden.

Revendication

Un élément deraccordement pour l'assemblage de pièces de construction préfabriquées (7, 8), comprenant un couvre-joint rectangulaire (1) à intégrer dans une rainure formée dans les arêtes ajustées des éléments de construction à assembler, caractérisé en ce que ledit élément de raccordement comprend encore un deuxième couvre-joint (2) qui est plus court, dont un bout axial est soudé le long d'une part de l'axe de l'une surface ou des deux surfaces en grande partie dudit premier couvre-joint (1), tel que le deuxième couvre-joint (2) s'étend verticalement sur ladite surface du premier couvre-joint, et que le bout axial opposé du deuxième couvre-joint (2) est pourvu d'une partie en forme d'un tenon qui s'étend parallèlement à l'axe du premier couvre-joint (1) précisément dépassant des arêtes du deuxième couvre-joint, faisant fonction de barres à serrer (4), et les deux couvre-joints (1, 2) sont fabriqués en acier et fournis d'alésages (5) pour insérer des bagues de raccordement (6), et le deuxième couvre-joint (2) est inséré dans des rainures (9), qui sont placées dans des arêtes des éléments de construction prochains à raccorder, et les barres à serrer sont insérés dans des alésages percés.

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FIG.1

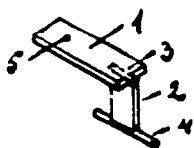


FIG.2

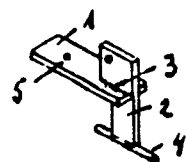


FIG.3

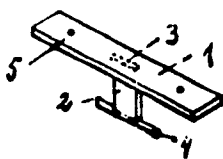


FIG.4

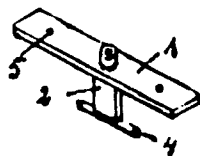


FIG.5

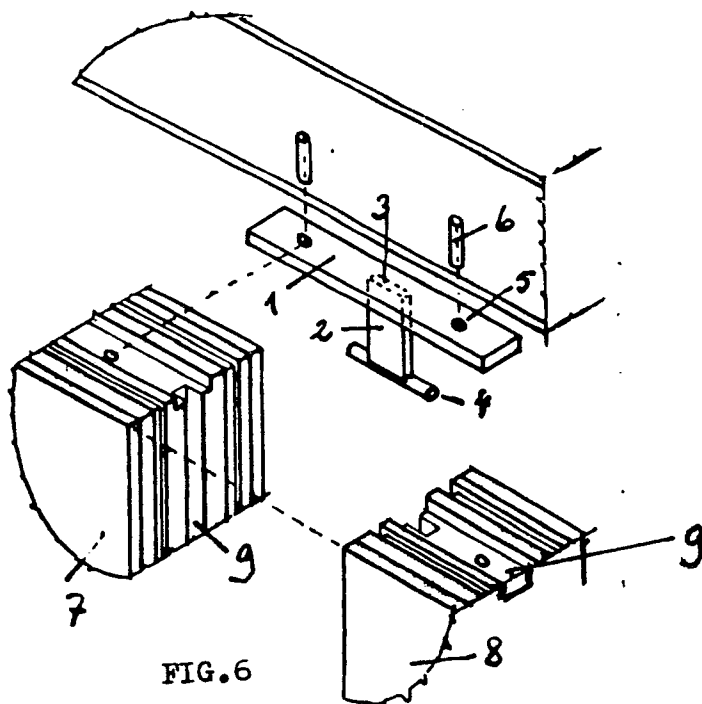
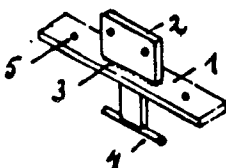


FIG.6