(19) Europäisches Patentamt
European Patent Office
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(11) **EP 2 273 025 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
12.01.2011 Bulletin 2011/02

(51) Int Cl.:
E04B 9/18 *(2006.01)* ***E04F 13/08*** *(2006.01)*

(21) Application number: **10380075.1**

(22) Date of filing: **27.05.2010**

(84) Designated Contracting States:
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 SE SI SK SM TR
Designated Extension States:
BA ME RS

(30) Priority: **28.05.2009 ES 200900934 U**

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(54) **Device for the assembly of false ceilings and other type of construction panels**

(57) Device (1) for the assembly of false ceilings, insulation panels in ceilings and other types of suitable panels, which comprises a main body with a U-shaped section, with an intermediate face (2) and two side faces (3), the side faces (3) being disposed with grooves (5) for the insertion of guide flaps (6) of a profile (7) associated or attached to the false ceiling, insulation panel or any other type of suitable panel, where the device (1) is **characterised in that** the side faces (3) partially face each other, with the result that the intermediate face (2) is substantially a non-rectangular parallelogram. This shape of the device (1) enables its assembly on the profile (7), the assembly being completed by means of merely moving and turning the device (1) between the guide flaps (6) of the profile (7).

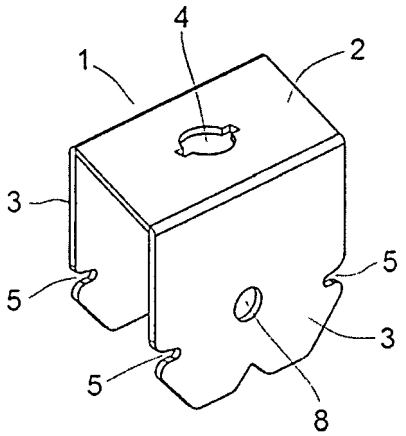

FIG.1

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Description

Technical field

[0001] The invention relates to a device for assembling false ceilings, insulation panels in ceilings or any other type of panel used in construction.

Prior art

[0002] In the construction industry there is a known device for assembling false ceilings with sound insulation, insulation panels in ceilings or any other type of suitable panels, previously described in Utility Model ES1032797U. Said device essentially consists of a metallic part with a U-shaped section and with flat sides, the part thus comprising a flat intermediate face and two flat side faces. The flat intermediate face is screwed to the ceiling, and for this reason it comprises a hole, through which a screw, threaded rod or similar fastening means may pass. The flat side faces extend downwards and comprise means for their connection to a profile fixed to the false ceiling, insulation panel or any other type of suitable panel (made of cardboard, plasterboard, etc). There are mainly two such means: side grooves designed to fit into tabs on a metal profile fixed to the false ceiling, insulation panel or any type of panel; or central holes designed to house a cross pin, which may be connected to a hook fixed to the false ceiling, insulation panel or any type of panel. As a result, the device is designed for its connection to a false ceiling, insulation panel or any type of panel, regardless of whether it is provided with profiles or with hooks. In other words, the same device offers two connection methods.

[0003] The aim of the present invention is to offer an improvement on the previous device in order to enable its connection to the profiles of the false ceiling, insulation panel or any type of panel, in the event that the connection is performed by means of profiles. It is an objective of this invention, therefore, that the assembly of the device and the profiles is equally as strong but also quicker to and easier to complete. At the same time the invention must provide sound insulation.

Brief description of the invention

[0004] It is an object of this invention to provide a device for the assembly of false ceilings, insulation panels in ceilings or any other type of suitable panel, which, as is the case with conventional devices, comprises a main body with a U-shaped section, with an intermediate face and two side faces, the intermediate face being designed for its fixing to the ceiling through at least one hole formed in it, and the side faces being disposed with grooves for the insertion of guide flaps on a profile attached or fixed to the false ceiling, insulation panel or any other type of suitable panel. The inventive device is **characterised in that** the side faces partially face each other, with the result that the intermediate face is substantially a non-rectangular parallelogram. In other words, when seen from a top view, the device (i.e. its intermediate face) is not rectangular, as is the case in conventional devices, but substantially takes the shape of a non-rectangular parallelogram, by which it is understood that it is a parallelogram with internal angles that are not right-angles, i.e. that are different to 90°.

[0005] The fact that the device is shaped in this way allows it to be inserted and fixed more easily to the guide flaps of the profile. The assembly is then completed by longitudinally inserting the device between the guide flaps and then turning the device until the grooves fit with the guide flaps, as shown more clearly and in more detail in the accompanying figures.

Brief description of the drawings

[0006] Details of the invention can be seen in the accompanying non-limiting figures:

- Figures 1 and 2 show two perspectives of an embodiment of the device according to the invention.
- Figures 3, 4 and 5 respectively show a front view, a top view and a side view of the device of Figures 1 and 2.
- Figures 6 to 9 show the sequence for connecting the device to a profile attached to a false ceiling, an insulation panel or any other type of suitable panel.

Detailed disclosure of the invention

[0007] Figures 1 and 2 show two perspectives of an embodiment of the device according to the invention, which may be used to assemble false ceilings, insulation panels in ceilings and any other type of suitable panel. Said device (1) comprises a main body with a U-shaped section, with an intermediate face (2) and two side faces (3). The intermediate face (2) is designed for its fixing to the ceiling through at least one hole (4) formed in it, through which passes some type of fixing means (for example, a screw or a threaded rod). Beneath the hole (4), between the side faces (3), is situated a silent block (not shown in the figures), the function of which is to sound-insulate the area above the hole (4) from the area located beneath it. The side faces (3) present side grooves (5) into which are inserted guide flaps (6) of a profile (7) associated or connected to the false ceiling, insulation panel or any other type of suitable panel, as shown in the figures below.

[0008] Figures 3, 4 and 5 respectively show a front view, a top view and a side view of the device (1) of Figures 1 and 2. These figures clearly show the determining feature of the invention, namely the fact that the side faces (3) partially face each other, with the result that the intermediate face (2) is substantially a non-rectangular parallelogram, i.e. a parallelogram shaped in such a way that its internal angles are different to 90°.

[0009] Preferably, the side faces (3) of the device (1) also comprise a hole (8) for the insertion of a cross pin from which a hook (attached or connected to the false ceiling, insulation panel or any other type of suitable panel) is hung. This form of connection by means of a hook may be additional to the connection by means of a profile (7) with guide flaps (6).

[0010] Figures 6 to 9 show the sequence for connecting the previous device (1) to a profile (7) attached to a false ceiling, an insulation panel or any other type of suitable panel. The invention allows the device (1) to be inserted in the profile (7) in the manner shown in Figure 6: the device (1) is disposed in a longitudinal direction, between the guide flaps (6) and slightly spaced from them. The device (1) is inserted until it reaches the position of Figure 7. The device (1) is then turned, as shown in Figure 8. As a result of said turning the grooves (5) come into contact with the guide flaps (6) of the profile (7) and cause the profile (7) to become deformed and thereby open, in other words they cause the guide flaps (6) to separate (these being shown in Figure 8 in an open position by means of a continuous line and in a more closed starting position by means of dotted lines). If the device (1) is turned further, it reaches the position shown in Figure 9, in which the guide flaps (6) of the profile (7) return to their original position and the grooves (5) of the side faces (3) fit with the guide flaps (6). This way of inserting and fitting the device (1) is far more simple than in conventional devices, in which the device approaches the profile (7) transversally, with the grooves (5) of the side faces (3) having first of all to fit with the guide flaps (6) prior to the insertion of the profile, and with the device then having to be pushed towards the inside of profile (7) guided by the guide flaps (6).

[0011] Preferably, the smaller internal angle (9) (shown in Figure 4) of the parallelogram that forms the intermediate face (2) of the device (1) is comprised between 45 and 75°. This range is considered suitable for the correct operation of the device (1). If this angle were closer to 90°, in other words if it were a "more rectangular" parallelogram, this would mean that for the device (1) to be able to deform the profile (7) in accordance with Figure 8, the device (1) would have to have overly small diagonals, which would result in the device (1) being loose after being fitted in the end position (Figure 9). In contrast, if this angle were smaller, in other words if the parallelogram had a "more tapered" shape, this would mean that the device (1) would have to turn a smaller angle from the starting position of Figure 7 to the end position of Figure 9 (which may be advantageous in principle) although this would however cause a smaller deformation in the profile (7), thus reducing the strength of the connection between the device (1) and the profile (7) (in consequence, it would be simpler, for example, that the device (1) were accidentally released from the position of Figure 9, turning in an opposite direction and overcoming the minor deformation of the profile (7) towards the position of Figure 7). Within the aforementioned range, the device (1) is regarded as operating particularly optimally, with the best equilibrium between the simplicity and strength of the assembly being obtained, when the smaller internal angle (9) is comprised between 60 and 70°.

Claims

1. Device (1) for the assembly of false ceilings, insulation panels in ceilings or any other type of suitable panel, which comprises a main body with a U-shaped section, with an intermediate face (2) and two side faces (3), the intermediate face (2) being designed for its fixing to the ceiling through at least one hole (4) formed in it, and the side faces (3) being disposed with grooves (5) for the insertion of guide flaps (6) of a profile (7) associated or attached to the false ceiling, insulation panel or any other type of suitable panel, where the device (1) is **characterised in that**:

   - the side faces (3) partially face each other, with the result that the intermediate face (2) is substantially a non-rectangular parallelogram.

2. Device (1) according to claim 1, **characterised in that** it also comprises a hole (8) for the insertion of a cross pin.

3. Device (1) according to claim 1, **characterised in that** it comprises a silent block to provide sound insulation.

4. Device (1) according to claim 1, **characterised in that** the smaller internal angle (9) of the parallelogram is comprised between 45 and 75°.

5. Device (1) according to claim 4, **characterised in that** the smaller internal angle (9) of the parallelogram is comprised between 60 and 70°.

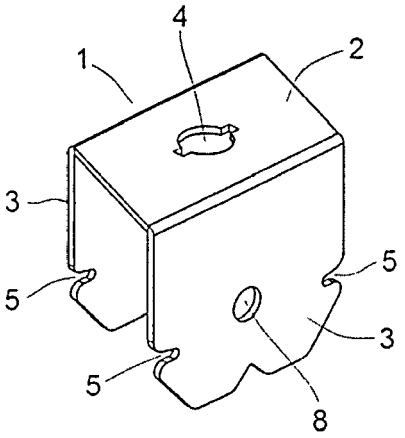

FIG.1

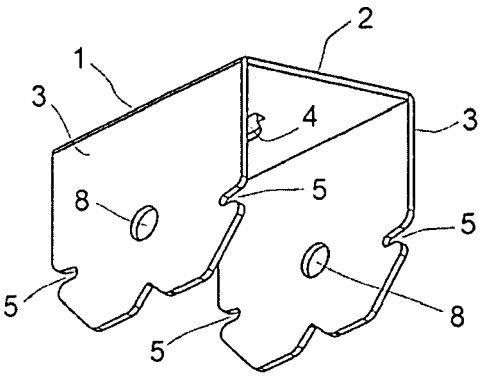

FIG.2

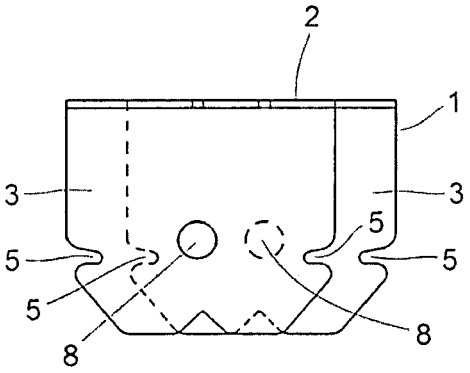

FIG.3

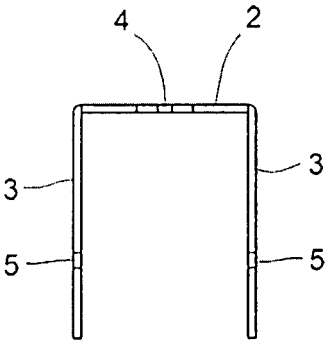

FIG.5

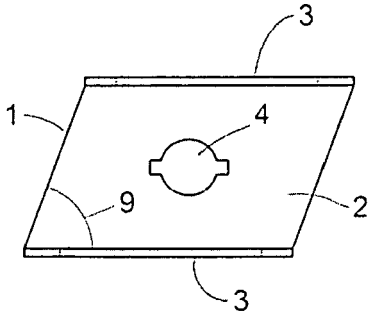

FIG.4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 1032797 U **[0002]**