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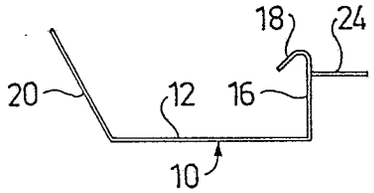
(54) Mounting element for ceiling module.

(57) A mounting element (10) for pivotable connection of a ceiling module (14) relative to a supporting frame for false ceilings. The mounting element includes in principle three main parts. The first main part consists of a mounting part (12) for fixing the mounting element on the ceiling module. The second main part is an engagement part (18) intended for pivotable engagement in a recess or the like in the supporting frame. The third main part is a resilient part (16) located between the mounting part (12) and the engagement part (18). The latter is arranged for pivoting in a desired direction and locking the ceiling module, respectively.

FIG.1



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Description

MOUNTING ELEMENT FOR CEILING MODULE

The present invention relates to a mounting element for pivotable supporting of a ceiling module relative to a supporting frame for a false ceiling.

Various facilities for mounting of ceiling modules in support frames are previously known. Thus, among other things various types of linked connections, e.g. hinges, are used. Examples are disclosed in the two French patents No. 73 16 734 and No. 82 08 907.

The object of the present invention is to provide a mounting element for pivotable supporting of ceiling modules relative to a supporting frame for ceilings. The mounting elements having a simple construction do not only allow hinging and/or dismantling of single modules in a very safe way, they also lock the ceiling modules to the mounting frame when they are in horizontal position.

Another very important advantages is the flexibility, which is achieved by using the new mounting elements, whereby the ceiling modules can be lowered from optional side. Ventilation drums, cable racks, electrical cables etc housed behind will thereby be very easily available.

The mounting elements can further be used for all ceiling modules included in the false ceiling, alternatively for a single row of ceiling elements which are to be possible to lower.

The mounting elements are fixed on the upper side of the ceiling elements for anchoring in a supporting frame. No visible profile system is needed, which makes the system cheap to produce as well as very interesting esthetically. The simple construction of the mounting elements makes the installation simple at the same time as it nevertheless creates a very safe and stable function.

The mounting elements can be fixed at the edge of the ceiling modules a short distance inwards from respective corner or at the outer end of the ceiling element, totally depending upon where the supporting frame most suitably could be installed.

The ceiling elements can very easily be installed, brought down and/or pivoted without use of any tool. Special characteristic for the mounting element according to the invention is that it includes a mounting bracket for fixing the element on the ceiling module, and engagement part for pivotal engagement in a notch or the like in the supporting frame and a resilient part located between the supporting part and the engagement part for turning in desired direction and securing the ceiling module, respectively.

Further characteristics of the invention are stated in the dependent claims.

The invention will now be illustrated by way of example with reference to the accompanying drawing.

Figure 1 illustrates a suitable embodiment of the new mounting element in a side view.

Figure 2 is a top view of the mounting element according to figure 1.

Figure 3 is a perspective view of a part of the sealing including a complete false ceiling element which is fixed on a conventional supporting frame in shape of C-profiles. Other profile types, as U-, T-, L-, and square profiles, can also be advantageously used.

As can be seen from the drawing the new mounting element 10 comprises a mounting part 12 provided with two similar through-bores 13. The mounting part 12 is to be mounted on the upper side of the one edge of a ceiling module 14 by means of screws not shown. The mounting part 12 can also be connected to the ceiling module 14 in another way, as bolting or gluing, all depending upon suitability and the material of the ceiling module. For each ceiling module 14 at least two mounting elements 10 are used and normally four as shown in figure 3. The complete arrangement will be more closely described later on with special reference to figure 3.

From the one end of the mounting element 10 and perpendicular thereto extends a resilient part 16, the upper end of which is provided with an engagement part 18, which is bend inwards over the mounting part 12. From the opposite end of the mounting part 12 extends a guiding part 20 at an angle upwards. By adjustment of the length of the mounting part 12 in correspondence with the width of a profile 22 in the supporting frame the guiding part 20 will, at the installation of the mounting element 10 promote the consistency of the construction and fixing of the C-profile.

The mounting part 12, the resiliant part 16, the engagement part 18 and the guiding part 20 are in the illustrated embodiment formed in one single piece of spring steel, the various parts being formed with a starting point from a bandshaped rawmaterial in accordance with the teachings of figure 1 on the drawing.

A special gripping part 24 forms in the illustrated embodiment a part of the resilient part 16 and has the shape of a tongue extending from the resilient part in opposite direction relative to the engagement part 18. The arrangement can of course also be such that the gripping part 24 is a separate part attached to the mounting element 10. In the present case the plate material obtains at the fabrication a tongue formed punching which is bent out and forms the grippning part 24, the outer end then being bent in the opposite direction thus forming the engagement part 18.

As can be seen from figure 3 an individual ceiling module 14 is provided with totally four similar mounting elements 10. Two mounting elements are arranged on each one of the longitudinal side edges of the ceiling module 14. When placing the profiles 22 along with the outer edges of the ceiling module 14 it can in certain cases be sufficient with two mounting elements. The mounting elements 10 are fixed on the upper side of the ceiling module 14, which is the side intended to face away from the room. The mounting elements 10 can as shown in figure 3 be fixed on the upper side of a frame 26

encircling each ceiling module. It is also posible to fix the mounting element directly in the ceiling panel, which also can be reinforced, instead of fixing the mounting elements 10 on an encircling frame.

Two mounting elements 10 located at opposite side edges engage corresponding recesses 28 in one of the C-formed profiles 22 of the supporting frame. The two other mounting elements engage in a corresponding way the recesses of the other profile of said supporting frame. The engaging parts 18 of the mounting element 10, which are arranged on the same side edge of the ceiling module, are then facing each other.

When mounting the ceiling module 14 the engaging parts 18 arranged at one end of the sealing module are inserted in corresponding recesses, the module thereafter being pivoted upwardly from mainly vertical position with the inserted engagement parts 18 acting as hinges to an up-turned position, where the two remaining engagement parts easily can be inserted in their respective recesses 28 by manual control of the position of the engaging parts by means of the gripping parts 24.

When the ceiling module 14 is to be brought down or pivoted downwardly the opposite working order is to be used.

Modifications of the described mounting element can of course be realized within the frame of the following claims.

Claims

1. Mounting element (10) for pivotable connection of a ceiling module (14) relative to a supporting frame for false ceilings, **characterised** by a mounting part (12) for fixing of the mounting element on the ceiling, an engagement part (18), intended for pivotable engagement in a recess (28) or the like in the supporting frame, and a resiliant part (16), located between the mounting part and the engagement part arranged for pivoting in a desired direction and locking the ceiling module, respectively.

2. Mounting element according to claim 1, **characterized** in that it also includes a gripping part (24) arranged to make said pivoting of the resilient part possible by manual influence.

3. Mounting element according to claim 2, **characterized** by the gripping part (24) facing in opposite direction to the engagement part (18).

4. Mounting element according to any of claims 1-3, **characterized** by the resilient part (16) being arranged at one end of the mounting part (12) and running essentially perpendicular to the mounting part.

5. Mounting element according to any of claims 1-4, **characterized** by the length of the mounting part (12) essentially corresponding to the profile width of the supporting frame and a guiding part (20) extending at an angle from that end of the mounting part which is opposite to the resilient part (16).

FIG.1

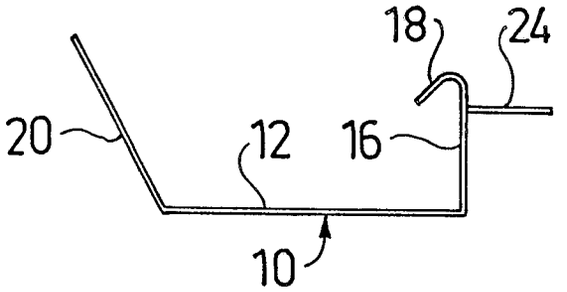


FIG.2

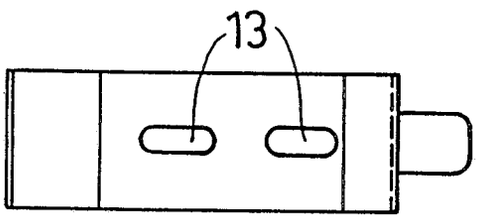
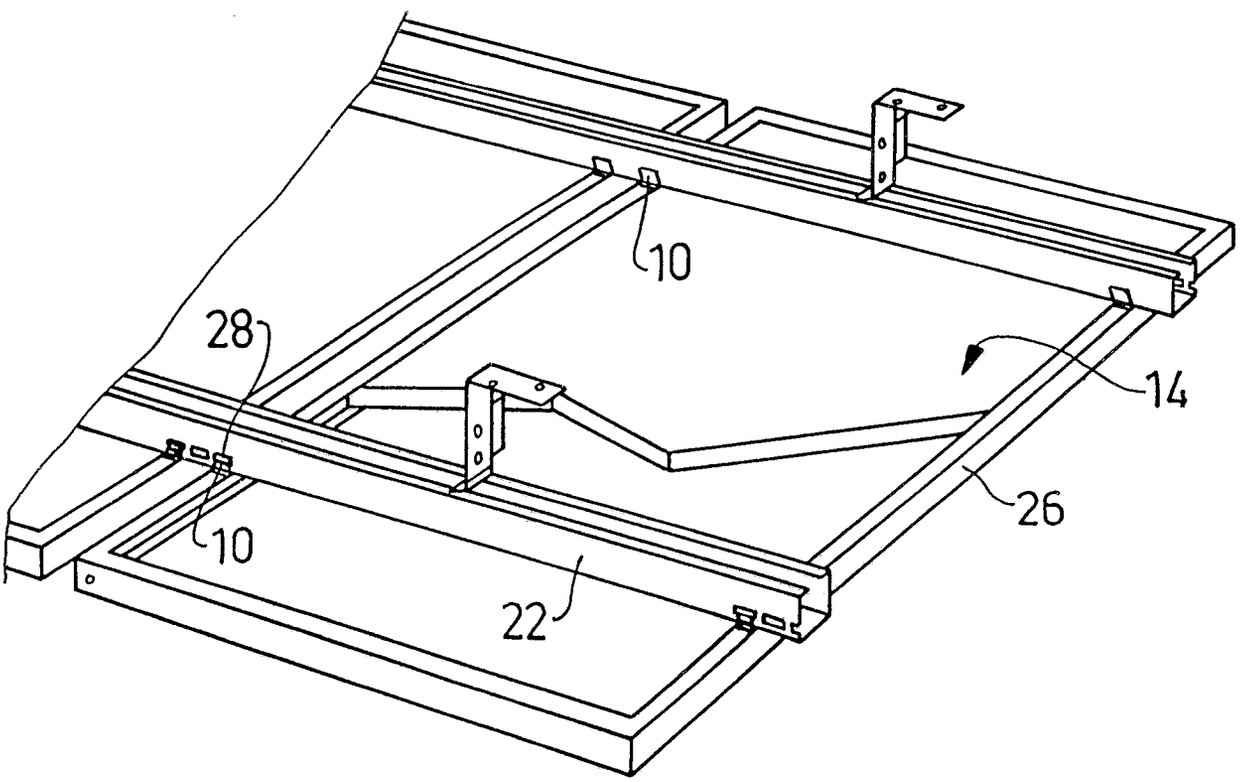


FIG.3



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EUROPEAN SEARCH REPORT

Application Number

EP 88 85 0361

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X Y	US-A-1 716 038 (FERRIS) * Page 1, lines 89-110; page 2, lines 1-19,45-65; figures 1,2 *	1 2,4	E 04 B 5/57 E 04 F 19/08
Y	EP-A-0 196 460 (SCHENK) * Page 5, paragraph 3; figures 6,9 *	2	
Y	FR-A-1 313 158 (PALMER) * Page 2, column 1, lines 28-37; figures 1,3,4 *	4	
A	GB-A- 604 487 (McASKILL HAY) * Page 3, lines 118-130; page 4, lines 1-16; figures 4,5,9,10 *	2,3	
A	US-A-1 997 582 (HEEREN) * Page 1, column 2, lines 33-48; figures 1,3 *	1,2,4,5	
A	FR-A-2 590 304 (CHAMAYOU) * Page 4, lines 22-33; figures 1,2,3,4 *	1,4,5	TECHNICAL FIELDS SEARCHED (Int. Cl.4) E 04 B E 04 F
A	DE-A-1 609 469 (RIGIPS BAUSTOFFWERKE GmbH) * Page 4, paragraphs 1,2,3; page 6, paragraph 2; figures 1,3 *	1,5	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25-01-1989	HENDRICKX X.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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