



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 727 538 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
21.08.1996 Bulletin 1996/34

(51) Int. Cl.⁶: E04C 2/04, E04B 9/04

(21) Application number: 96200329.9

(22) Date of filing: 12.02.1996

(84) Designated Contracting States:
AT BE CH DE FR GB LI LU NL

(72) Inventor: Faay, Cornelis Anthonius
NL-3411 JV Lopik (NL)

(30) Priority: 14.02.1995 NL 9500272

(74) Representative: de Bruijn, Leendert C. et al
Nederlandsch Octrooibureau
P.O. Box 29720
2502 LS Den Haag (NL)

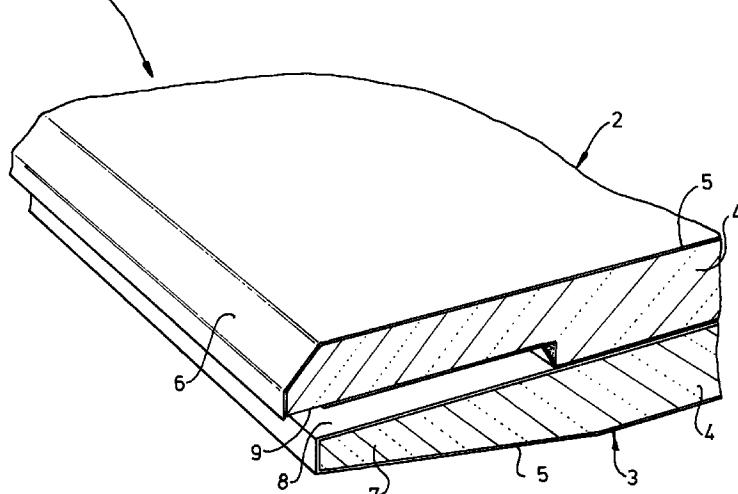
(71) Applicant: FAAY VIANEN B.V.
NL-4130 EC Vianen (NL)

(54) Laminated ceiling or wall panel and method for the production thereof

(57) Method for the production of ceiling or wall panels which preferably are finished on both sides, wherein two slabs (2,3) having cores (4) of fully hardened plaster or other brittle material, preferably stony material, laminated on both the top and the bottom face with a reinforcing layer (5) of, for example, paper or cardboard, of a thickness which is preferably appreciably less than the core (4) thickness, are assembled to form a laminated panel, and measures are taken to delimit a rebate (8) in the longitudinal edge of the panel between said two slabs (2,3), wherein the reinforcing layer (5) is initially

freed from at least one of the slabs at least in a longitudinal edge region on the side of the intended rebate (8) and the slab is provided in said longitudinal edge region with an edge recess (9), a reinforcing layer (5) is then re-laminated, preferably essentially over the entire surface, on the region of the core (4) from which the reinforcing layer (5) has been removed, which reinforcing layer (5) is either the original reinforcing layer from said region or a new reinforcing layer, and the slabs (2,3) are then assembled to produce the laminated panel.

Fig -1



Description

The invention relates to a laminated ceiling or wall panel and a method for the production thereof. In particular, the invention relates to panels of this type which are provided with a rebate in the longitudinal edges and to the production thereof. A flange of a support section can protrude into said rebate, by which means the panel can be mounted and supported in the intended location.

One example of a panel of the envisaged type is to be found in EP-A 0 329 123 in the name of the Applicant. This known laminated panel with rebates in the longitudinal edges is assembled from two so-called plasterboards placed on top of one another with a spacer element in the form of a relatively thick cardboard layer between them. The plaster core of each plasterboard is wrapped in a reinforcing layer of thin cardboard attached to the plaster core. The cardboard spacer element has a thickness which corresponds to the longitudinal edge rebate delimited between the two plasterboards. This known laminated panel is characterised by the relatively high consumption of material for forming the rebate.

The aim of the present invention is to reduce the necessary consumption of material while maintaining the option of assembling the laminated panel from plasterboards or slabs of comparable material provided with an outer reinforcing layer produced in accordance with standard production methods. Plasterboards and comparable slabs are produced in standard sizes in large numbers at relatively low production costs for many purposes. By assembling wall or ceiling panels from two or more plasterboards or corresponding slabs, production and thus cost advantages are achieved which cannot be achieved in the case of the production of integrated wall or ceiling panels for comparable performance in respect of reliability, durability, dimensional stability, strength, processability and the like.

In order to achieve the intended aim, the present invention proposes a method corresponding to the measures according to appended Claim 1 and a laminated wall or ceiling panel corresponding to the measures according to appended Claim 4.

In this way it is possible, starting from plasterboards and boards of comparable material which can be produced using standard production processes, to obtain a laminated panel which has the desired rebate, without the need for a spacer element or intermediate layer between the slabs assembled to produce the laminated panel in order to obtain said rebate. On the other hand, for example when a rebate of appreciable thickness is desired, it is still possible to make use of a spacer element between the plasterboards or slabs assembled to produce the laminated panel, to which end said spacer element then has to define only a part of the total thickness of the rebate, and thus can be made appreciably thinner in comparison with the method according to the prior art, which then again also leads to the envisaged

saving in material while maintaining the option for the use of standard plasterboards or slabs.

One or both slabs for the laminated panel can be provided with the edge recess, which choice is, for example, dependent on the desired thickness of the rebate. Consequently, a wide range of rebate thicknesses can be obtained, so that in practice it is often possible to meet the requirements without a special spacer layer between the two assembled slabs to make a substantial contribution to the rebate thickness.

When making the edge recess in a plasterboard or slab which can be taken from stock it is preferable to retain the original reinforcing layer from the region where the edge recess is made. Unnecessary loss of material is counteracted in this way. Furthermore, in this context it is preferable to make the edge recess in such a way that the original reinforcing layer remains substantially intact, so that initially a free edge strip of the reinforcing layer is produced during the production of the edge recess, which edge strip preferably remains permanently joined to the reinforcing layer located further towards the middle, for example remains foldably joined thereto, so that the strip of reinforcing layer initially freed from the (plaster) core can then be laminated back onto the core in the recessed edge region. In this way the cohesion of the slab is substantially ensured and it is possible, for example, to avoid local thickening of the slab on its top or bottom, more towards the middle of the slab, counting from the point at which the edge recess is made, resulting, for example, from reinforcing layers which necessarily overlap for strength. In this way it is possible to assemble two slabs directly, without special measures, to produce the laminated panel.

Of course, it is also possible to remove the original reinforcing layer from the top or bottom of the slab, where the edge recess is to be made, over a wide area or, for example, over its entire surface. Local thickening of the slab can also be avoided in this way, because there is then no longer any need for overlapping reinforcing layers. However, this basic procedure is more troublesome and incurs a greater loss of material.

The invention is explained in more detail below with the aid of a non-limiting illustrative embodiment, which, however, is currently regarded as advantageous, with reference to the appended drawings. In the drawings:

Figure 1 shows a perspective view of part of a laminated wall or ceiling panel according to the invention;

Figures 2a to 2c show, diagrammatically, the successive steps when making an edge recess in one of the slabs for the laminated panel while carrying out one advantageous, but non-limiting, method according to the invention, only a cross-section of an edge region of the slab being shown in each case.

Figure 1 shows a wall or ceiling panel 1. This laminated panel 1 is assembled from a top slab 2 and a bot-

tom slab 3, which are joined full-face to one another. Each slab 2, 3 has a core of plaster, encased in a reinforcing layer 5 of thin cardboard. It is clear that the layer thickness of the cardboard 5 is appreciably less than the thickness of the core 4. As shown, the reinforcing layer 5 continues at the longitudinal side edges. Usually, as is also now the case, the reinforcing layer 5 does not continue over the ends. One of the ends of the panel 1 can be seen in Figure 1. As is shown, the longitudinal side edge 6 of the top slab 2 is obtuse, whilst the longitudinal side edge 7 of the bottom slab 3 is acute. By this means it is possible to achieve a different appearance with the wall or ceiling cladding using one and the same panel 1, depending on whether it is the top slab 2 or the bottom slab 3 which determines the visible side.

A rebate 8 is also delimited between the top slab 2 and the bottom slab 3. The flange of a support section can be inserted in said rebate, in a manner which is not shown in more detail, by which means the panel 1 can be fixed in place. With this embodiment the thickness of the rebate 8 is determined exclusively by the depth to which the edge recess 9 has been made in the top slab 2. By means of said edge recess 9, a rebate 8 of adequate thickness can be obtained, despite the fact that the reinforcing layers 5 on the respective top slab 2 and bottom slab 3 are fixed to one another solely via a suitable adhesive, and there is thus no spacer element of any significance placed between the top slab 2 and the bottom slab 3 in order to determine the thickness of the rebate 8.

Using a plasterboard ex works as the starting material, the edge recess 9 can be produced as is shown in more detail in Figures 2a - 2c.

Figure 2a shows the top slab 2 in its initial state. Using a milling cutter, which is not shown in more detail, that section of the core which is at the bottom in the drawing is milled in the direction of the arrow A working from the longitudinal edge 6. Said milling is carried out in such a way that section 5a of the reinforcement in the region where the edge recess 9 is made is retained. Preferably, its join to the section 5b of the reinforcement located further towards the inside also remains completely unaffected (Figure 2b). Section 5a of the reinforcement is then re-fixed to the core 4 (Figure 2c). In the case of this illustrative embodiment, a relatively thick adhesive plug 10 is provided at the start of the edge recess 9 in the core 4 in order to guarantee a uniform transition. Of course, such a uniform transition can also be provided in another way, for example by taking the correct measures when making the edge recess 9. In this way the core 4 is also reliably strengthened in the region of the edge recess 9 by the reinforcing layer 5.

The reinforcement plays a particularly important role at the location of the start of the edge recess 9 in the core 4, that is to say at the location where the adhesive plug is provided in the illustrative embodiment shown.

Claims

1. Method for the production of ceiling or wall panels which preferably are finished on both sides, wherein two slabs having cores of fully hardened plaster or other brittle material, preferably stony material, laminated on both the top and the bottom face with a reinforcing layer of, for example, paper or cardboard, of a thickness which is preferably appreciably less than the core thickness, are assembled to form a laminated panel, and measures are taken to delimit a rebate in the longitudinal edge of the panel between said two slabs,
characterised in that
the reinforcing layer is initially freed from at least one of the slabs at least in a longitudinal edge region on the side of the intended rebate and the slab is provided in said longitudinal edge region with an edge recess,
a reinforcing layer is then re-laminated, preferably essentially over the entire surface, on the region of the core from which the reinforcing layer has been removed, which reinforcing layer is either the original reinforcing layer from said region or a new reinforcing layer, and
the slabs are then assembled to produce the laminated panel.
2. Method according to Claim 1, wherein the slab is cut into, milled or otherwise machined from the side over essentially the longitudinal edge region in order to form the edge recess such that the strip of reinforcing layer which initially covered the said longitudinal edge region remains behind substantially free from the core and still connected to the remainder of the reinforcing layer on the same side of the slab adjoining the edge recess, and
said strip of reinforcing layer is then again laminated onto the core in the region of said edge recess.
3. Method according to Claim 1 or 2, wherein, for assembly of said two slabs to produce the laminated panel, the respective reinforcing layers facing one another are laminated directly to one another, that is to say without an intervening spacer element.
4. Laminated ceiling or wall panel assembled from two slabs which are each provided with a core of fully hardened plaster or other brittle material, preferably stony material, laminated both on the top and on the bottom surface with a reinforcing layer of, for example, paper or cardboard having a thickness which is appreciably less than the core thickness, and having a rebate in the panel longitudinal edge delimited between said two slabs,
characterised in that
at least one of the slabs is provided with an

edge recess in a longitudinal edge region on that side which faces the rebate, the laminated reinforcing layer in said longitudinal edge region being integrated with the reinforcing layer located further towards the inside on said side of the slab adjoining said edge recess, and

in that the said slabs are assembled directly to produce the laminated panel, that is to say without an intervening spacer element of a thickness which constitutes an appreciable proportion of the rebate thickness.

5

10

15

20

25

30

35

40

45

50

55

fig -1

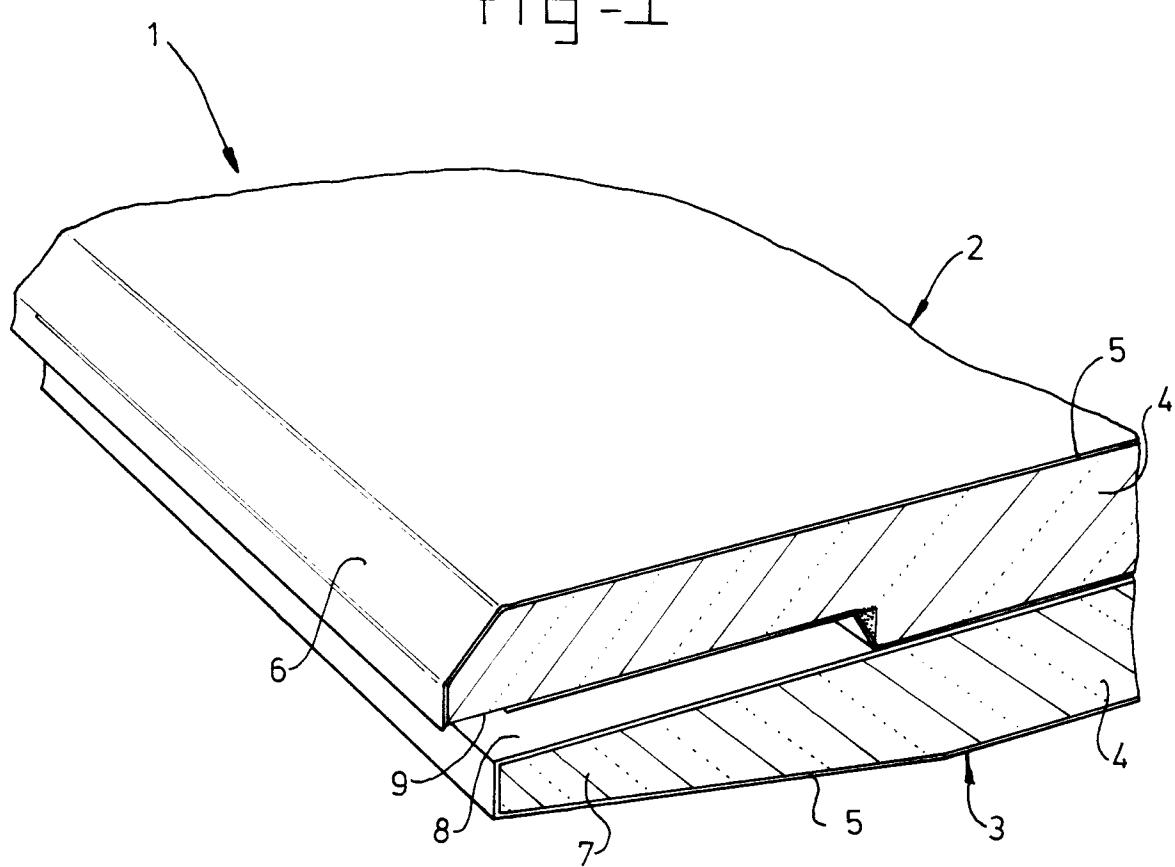


fig-2a

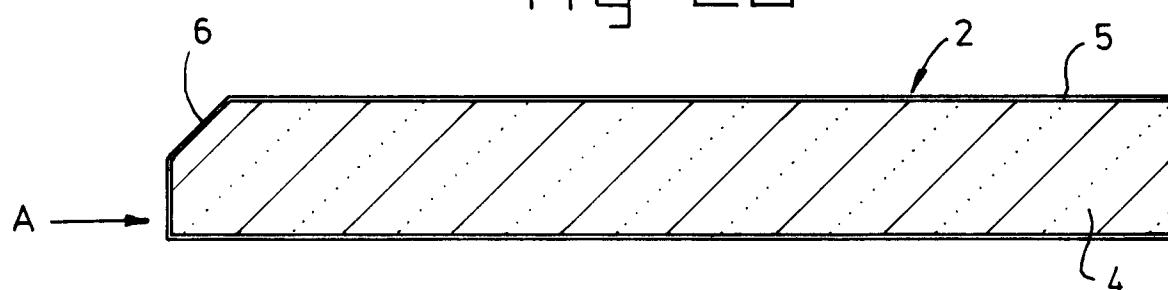


fig-2b

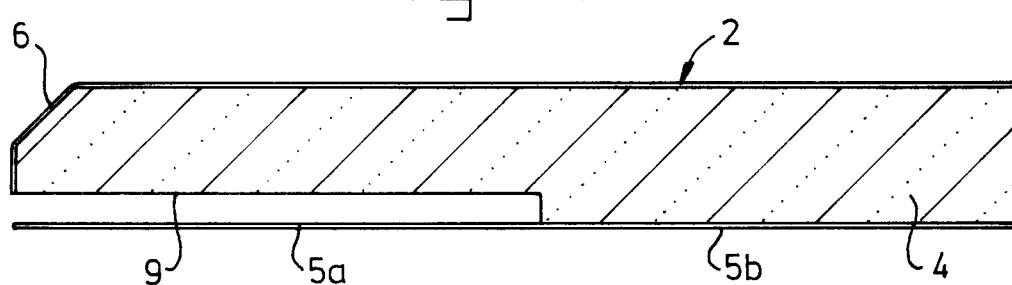
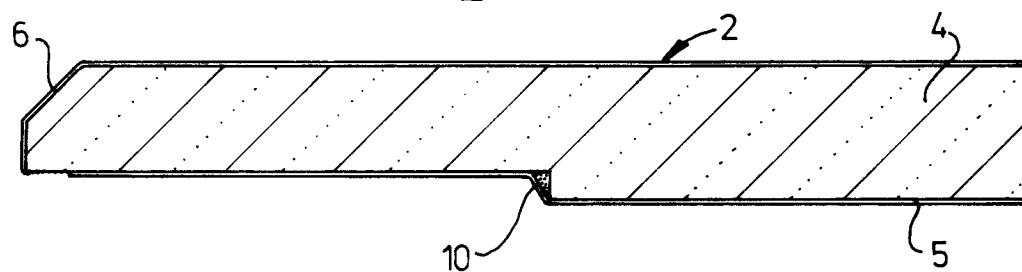


fig-2c





**European Patent
Office**

EUROPEAN SEARCH REPORT

Application Number

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.6)		
Y	DE-A-20 43 400 (AKTIEBOLAGET GYPROC) 25 March 1971 * page 4, paragraph 1 - page 5, paragraph 1 * * figures 1,2 * ---	1,2	E04C2/04 E04B9/04		
Y	US-A-4 047 347 (SCHEID) 13 September 1977 * column 7, line 62 - column 8, line 18 * * figure 13 * ---	1-4			
Y	US-A-2 968 070 (WOLSTEAD) 17 January 1961 * column 2, line 39 - column 2, line 69 * * column 3, line 49 - column 3, line 66 * * figure 2 * ---	1-4			
A	GB-A-1 270 243 (DUNLOP HOLDINGS LTD) 12 April 1972 * page 2, line 74 - page 2, line 92 * * figures 1-3 * ---	3,4			
A	US-A-3 998 679 (GWYNNE) 21 December 1976 * column 3, line 36 - column 3, line 44 * * figure 5 * ---	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)		
A	DE-A-33 33 509 (LÜTJE) 18 April 1985 -----		E04C E04B		
The present search report has been drawn up for all claims					
Place of search	Date of completion of the search	Examiner			
THE HAGUE	10 May 1996	Hendrickx, X			
CATEGORY OF CITED DOCUMENTS					
X : particularly relevant if taken alone	T : theory or principle underlying the invention				
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date				
A : technological background	D : document cited in the application				
O : non-written disclosure	L : document cited for other reasons				
P : intermediate document	& : member of the same patent family, corresponding document				