(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 147 647**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **84114340.7**

(22) Date of filing: **27.11.84**

(51) Int. Cl.⁴: **E 04 B 2/78**

(30) Priority: **28.11.83 DK 5449/83**

(43) Date of publication of application:
10.07.85 Bulletin 85/28

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

(71) Applicant: **DEKO LOFT OG VAEG A/S**
Brogrenen 7
DK-2635 Ishoej(DK)

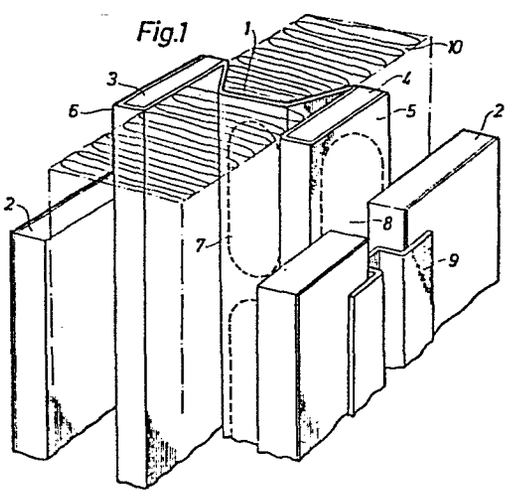
(72) Inventor: **Jahn, Finn B.**
Strandmoellevej 54
DK-4300 Denmark(DK)

(74) Representative: **Vossius Vossius Tauchner Heunemann Rauh**
Siebertstrasse 4 P.O. Box 86 07 67
D-8000 München 86(DE)

(54) A post profile for internal partitions.

(57) A post profile for internal partitions of the type wherein the post profile (1) is designed to support wall boards (2) with an interspacing corresponding to the profile. The profile (1) contains pockets or grooves (3), in which the fire-resisting material (4) is placed. The grooves are preferably placed in the profile's external faces in which cutouts (8) are provided so that the fire-resisting material (4) separates the proper profile (1) from the wall boards (2). The post profile serves to increase the fire-resistance of the partition.

Fig.1



Croydon Printing Company Ltd

The invention relates to a post profile for internal partitions, with the post profile being designed to support wall boards with an interspacing equal to the profile.

The use of metal profiles, preferably steel profiles, has long been known as the supporting panel in movable partitions of the type for which a supporting skeleton of post profiles, suitably laterally interspaced, is used and connected by transverse profiles at their top and bottom. Construction boards, e.g. gypsum boards, are placed on the external side of the said post skeleton. The said gypsum boards are secured to the external face of the post profile by a connecting profile provided with flanges protruding over the adjoining ends of the construction boards and designed to be screwed into the post profile. An insulating material, preferably mineral wool, is generally placed between the construction boards.

In order to meet the demands of the authorities in most countries with respect to e.g. fire resistance and sound-insulating capacity, it is necessary to use at least two layers of overlapping conventional construction boards in the above-mentioned known post structure. This, of course, makes the assembled partition considerably more expensive in relation to the previous solutions using a single layer of construction board.

Attempts have been made to solve the problem by placing a layer of non-flammable material on either profile side immediately under the lining boards, but this solution had to be abandoned for reasons of price, as an effective fire-resisting material is very expensive. To this comes that at worst the fitter omits placing the fire-resisting layer on the profile front sides, and, at best, uses a great deal of time in mounting it.

The object of the invention is to provide a profile which, together with a single layer of lining board on either side

of the profile, provides the requisite fire resistance in the total wall structure. At the same time, the profile should of course ensure that the structure complies with other demands with respect to mechanical strength, sound-insulation, etc. Finally, the profile should be simple to use and to mount.

According to the invention, this object is achieved by a post profile of the type mentioned in the opening paragraph, characterized in that the profile contains pockets or grooves, in which fire-resisting material is placed.

By incorporating fire-resisting material in the profile, the period during which the wall structure can insulate a room on fire from another is considerably extended. As a matter of fact, the invention is based on the finding that in case of fire, the weak link in a wall structure of the present type is precisely the post profile, as the heat transmits very quickly through the metal and causes melting of the connecting profile over the wall boards on the wall side facing away from the "hot" room. Once the connecting profile has melted, the wall boards bend outwards, and the intermediate insulating layer disappears, and then there is free passage for smoke and flames. By placing the fire-resisting material in the actual profile, thermal conduction is substantially delayed, as the fire-resisting material accumulates the heat and resists thermal conduction, while at the same time there is no risk of the fire-resiting material being omitted, as it is not immediately removable from the profile, and lastly, there is no need for an extra mounting stage.

In a preferred embodiment of a profile according to the invention, the grooves are placed in the profile's external faces designed to abut the wall boards.

In this way, maximum fire-resisting effect is achieved in precisely the most critical area for the mechanical strength of the wall structure, as the stabilized wall boards will be kept together for as long as possible.

According to the invention, the profile may be essentially M-shaped with pockets for fire-resisting material at the side lines of the M.

In this design, great stability of the profile is achieved with respect to compression across the wall structure. In addition, the comparatively wide abutting faces may be used to hold a comparatively large volume of fire-resisting material and form support for the wall boards.

According to the invention, the profile can also be essentially Z-shaped with pockets for the fire-resisting material at the side lines of the Z.

This embodiment also ensures great mechanical strength against compression and forms wide abutting faces for the wall panels.

In yet another embodiment of a profile according to the invention, cutouts are provided in the profile in the portions connecting the profile sections in which the fire-resisting material is placed.

This reduces the thermal conduction ability of the profile, and at the same time the cutouts can serve as through-going holes for installation of piping and wiring in the partition.

According to the invention, cutouts may be provided in the external faces of the profile.

This contributes to increased fire resistance, because the fire-resisting material will be able to resist radiation and absorb heat directly, as the flames will impinge upon the fire-resisting material through the mentioned cutouts.

The invention will be explained in more detail below with

reference to the drawing, in which

fig. 1 is an oblique view of the use of a post profile according to the invention, and

fig. 2 is a horizontal section through same.

Fig. 1 is a schematic illustration of the design in principle of a partition shaped in accordance with the invention. The post profile is generally designated 1, and in the shown embodiment it is essentially M-shaped. Bended sections 6 are provided in the side lines of the M, said bended sections being designed to retain bar-shaped strips 3 of fire-resisting material, e.g. raw gypsum. Cutouts 8 are provided in the external sides of the profile, so that the actual profile is protected against the influence of fire. In the centre connecting area of the profile, cutouts 7 may likewise be provided, said cutouts causing less thermal conducting ability and thus improved insulation against fire, at the same time as the cutout areas can be used if piping or wiring is to be installed in the partition.

In other respects, the wall structure is conventional, as wall boards, assembled adjacent to the side face of the post profile, are placed on either side of the post profile. The wall boards are secured to the post profile by means of a connecting profile 9, which has side branches abutting the wall boards, through which are mounted securing screws screwed into the post profile. An insulating material 10, preferably mineral wool, is placed between the wall boards.

Fig. 2 shows a horizontal section through the wall structure shown schematically in fig. 1, the wall boards however being shown on both sides of the profile 1. In addition, the M-shape of the profile 1 is shown more clearly, and the screws extending through the connecting profile 9 are indicated by a dot-and-dash line.

The post profile is preferably made of grooved sheet steel, but of course other suitable materials can be used. In the same way, asbestos foam, raw gypsum, hard-pressed mineral wool, or a special fire paste, which expands if exposed to heat, could be used.

Patent Claims:

1. A post profile for internal partitions, with the post profile (1) being designed to support wall boards (2) with an interspacing corresponding to the profile, characterized in that the profile (1) contains pockets or grooves (3), in which fire-resisting material (4) is placed.

2. A profile according to claim 1, characterized in that the grooves are placed in the profile's external faces (5, 6) designed for abutment on the wall boards.

3. A profile according to claim 2, characterized in that the profile (1) is essentially M-shaped with pockets for fire-resisting material at the side lines of the M.

4. A profile according to claim 2, characterized in that the profile (1) is essentially Z-shaped with pockets for fire-resisting material at the side lines of the Z.

5. A profile according to one of the preceding claims, characterized in that cutouts (7) are provided in the profile in the portions connecting the profile sections in which the fire-resisting material is placed.

6. A profile according to claim 1, characterized in that cutouts (8) are provided in the external faces (5, 6) of the profile.

0147647

Fig.1

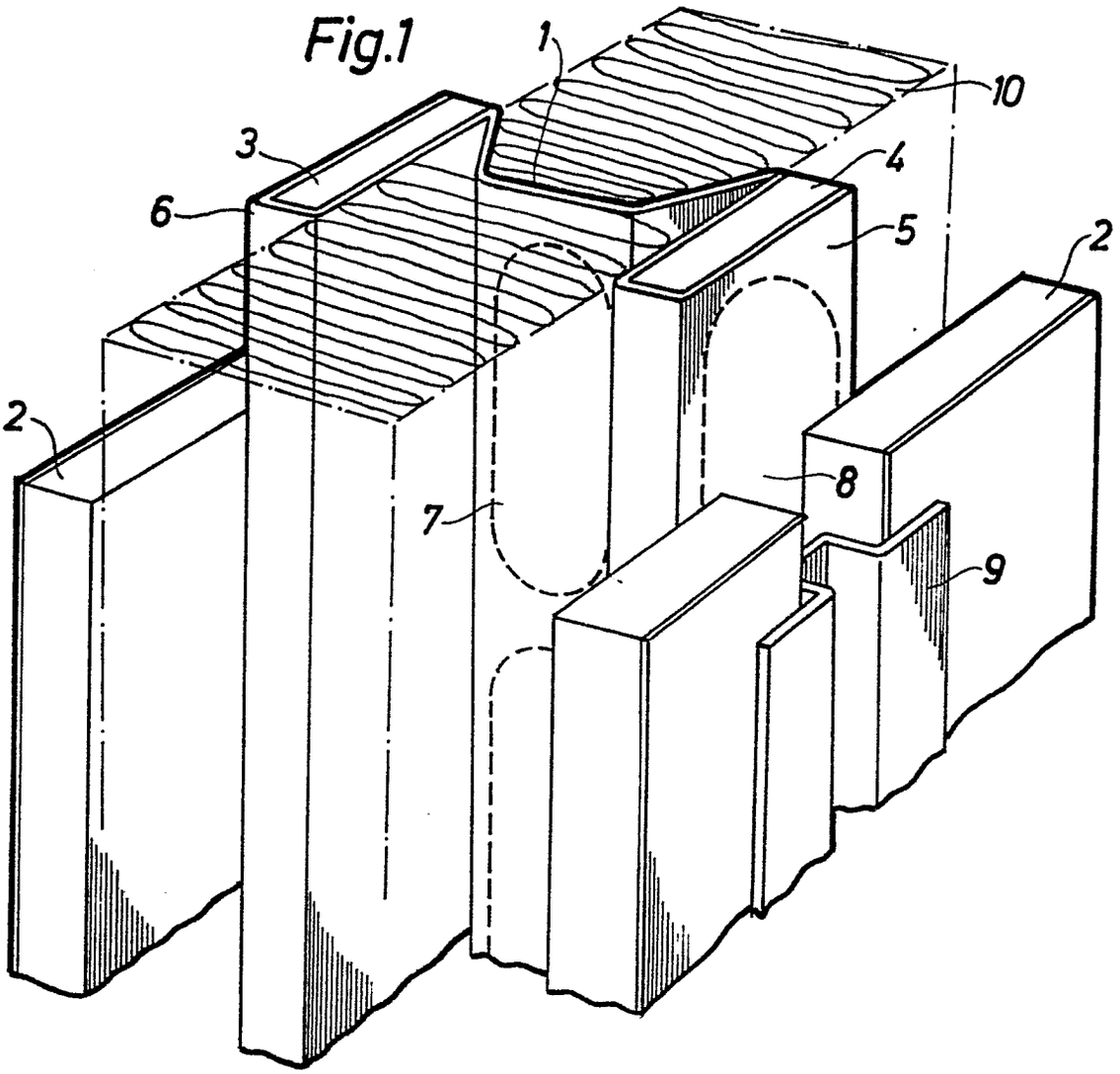


Fig.2