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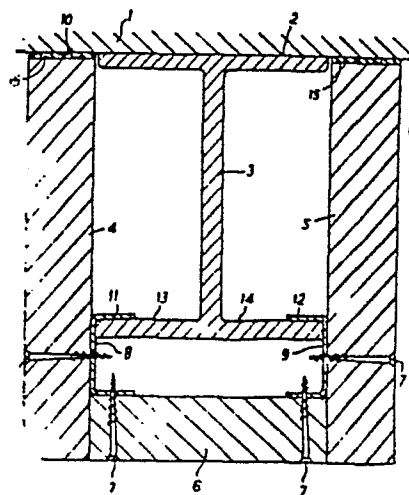
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(54) **A method of attaching cladding boards to steelwork.**

(57) U-shaped metal channel members (8,9) are used to attach cladding boards (4,5,6) to flanged structural steelwork (3), the flanges (13,14) of the latter being received in the channels and retained there by the boards, which are fastened to the channels.



EP 0 011 358 A1

Technical field of the Invention

This invention relates to the cladding of structural steel members for decorative and/or fire protection purposes. In particular, it relates to a method of
5 attaching cladding boards to I or T section steel joists, herein referred to as flanged structural steelwork.

The Prior Art

Hitherto, boards have been attached to such steelwork by methods involving the use of battens and/or blocks
10 of material jammed or otherwise secured to the steelwork between or extending along the flanges. The boards have been thereafter screwed or nailed to these battens/blocks, sometimes with the aid of adhesive compositions to fill any gaps. The object of these fixing methods
15 is to substantially completely enclose the flanged structural steelwork without actually drilling into it, if at all possible. In general terms, the use of such methods is labour-intensive and frequently necessitates the carrying out of complicated assembly
20 work in relatively inaccessible locations, often with the aid of ladders and/or scaffolding.

Description of the Invention

The invention resides in the use of U-shaped metal channel members to attach cladding boards to
25 flanged structural steelwork (as herein defined).

According to one aspect of the invention, a method of attaching cladding boards to flanged structural steelwork (as herein defined) comprises the steps of fastening the base of a metal U-section channel member
30 to each one of a pair of boards so that the arms of the U project substantially normally of the board, presenting the boards to the steelwork so that an oppositely directed

flange thereof is received in each of said channels, 0011358
presenting a third board to the other two so as to bridge
the gap between them and lie against an arm of each
channel followed by fastening said third board to each
5 of said arms.

It will be appreciated that the foregoing method
serves to clad flanged structural steel work on three
sides, but the principle applies equally to the fourth
side of an I-section joist, the method then including
10 the steps of fastening U-shaped channels to each of
the first two boards and presenting and fastening a
fourth board, in the same manner as the third board,
above.

However, according to another aspect of the invention,
15 the method comprises joining two boards at right angles
by fastening them to one arm and the base respectively
of a U-shaped metal channel member to form an L-shaped
assembly and fastening a second U-shaped metal channel
member to one of said boards so that the arms of the
20 U extend from the board parallel to those of the first
channel member in the assembly; a second such assembly
of opposite hand is then formed and the two assemblies
are presented to opposite sides of an I-section flanged
structural steelwork joist so that the parallel flanges
25 thereof are received in the respective parallel channels
with an arm of each assembly abutted against one of
the respective side walls of each of the second channel
members, followed by fastening said arms to said side
walls to substantially enclose the I-section joist.

30 A particularly preferred fastening method is by
the use of self-tapping screws, especially of the kind
which drill their own pilot hole in the metal channel
members. This enables the installation of cladding boards
to be carried out without any conventional drilling
35 operations and this helps to speed assembly.

An important advantage of the invention resides in the fact that fastening need not involve any screwing or nailing into the material of the boards themselves; the metal channel supports the load. Furthermore, it is not necessary to drill the flanged structural steelwork. Also, as much work can be carried out at ground level, installation reduces to cutting and partial assembly (on the ground), followed by temporary clamping to the flanged member and a final fastening operation.

Description of one embodiment of the invention

One preferred embodiment of the invention will now be described by way of example with reference to the accompanying drawing in which the sole figure is a cross-sectional end view of an I-section joist supporting a floor slab.

In the figure, a concrete floor slab 1 rests on the upper face 2 of an I-section joist, 3. Fire protection boards 4, 5 and 6 enclose the joist on its three exposed sides, being retained in place by self-tapping screws (of the self-drilling kind) 7, which fasten the boards to light steel channel members 8 and 9 respectively. The gap 10 between the slab and the edges of the boards abutting the slab is filled with a conventional cement/adhesive composition, 15.

Installation of the cladding was carried out by the first of the two basic methods described earlier. The boards 4 and 5 were fastened to the bases of their respective channel members 8 and 9. These boards were then temporarily clamped in place on the joist after trowelling on the cement/adhesive 15, wedges being employed to preserve the gap 10 and hold the arms 11, 12 of the channels against the inside faces 13, 14 of the lower flanges of the joist. This was necessary to prevent extrusion of the cement/adhesive on carrying out the next step, which was the installation and fastening in place of the remaining board 6, to cover the lower face of the joist.

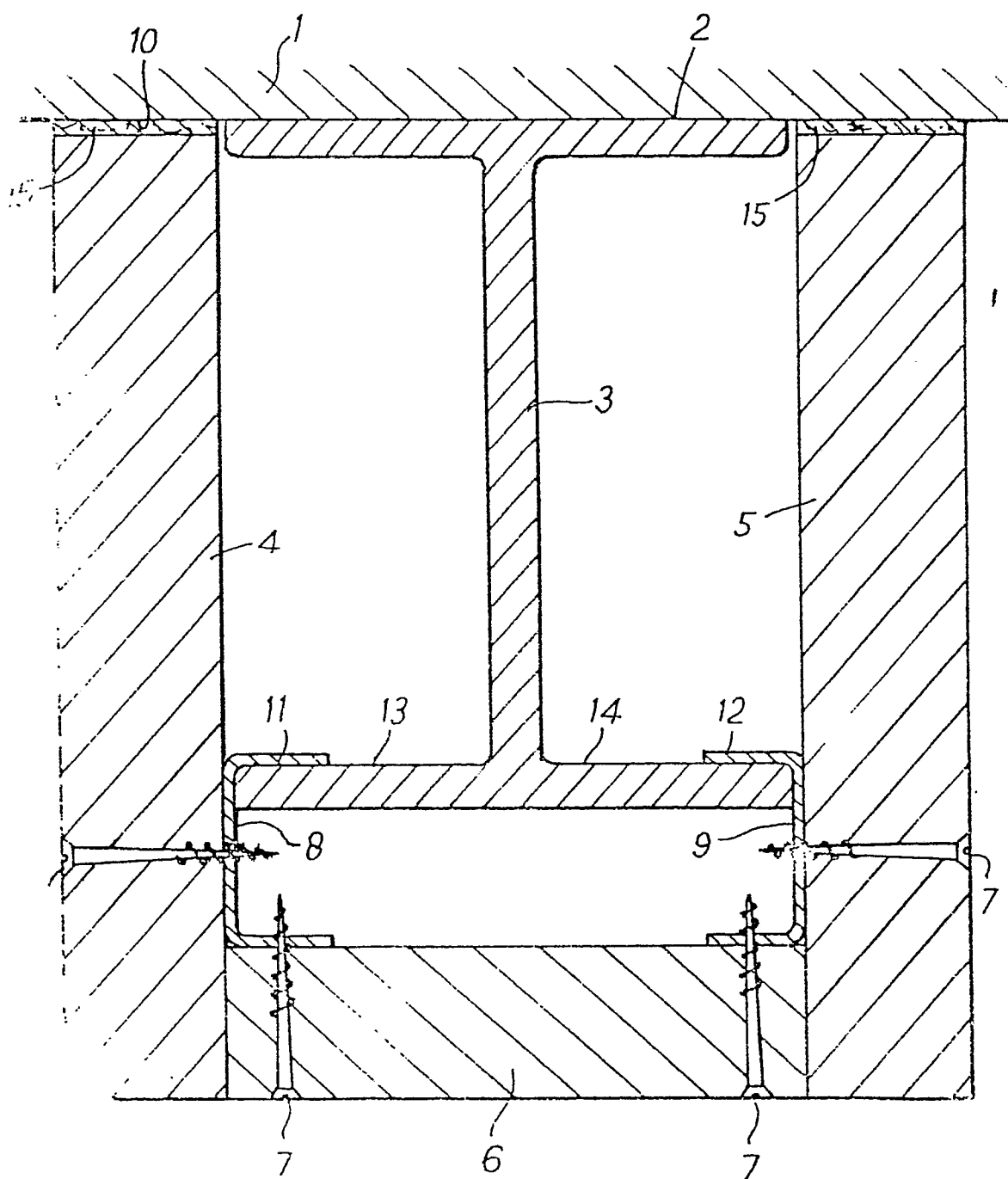
It will be appreciated that the method of the invention is capable of variation to suit the requirements of a particular installation. For example the board 6 need not fit between the other two; it may cover the whole of the bottom of the assembly, by appropriate choice of its width and of the depth of the boards 4 and 5. Other permutations are feasible and, of course, where a four sided flanged member is to be enclosed, similar variations are possible without departing from the basic concept.

What we claim is :-

1. A method of attaching cladding boards to flanged structural steelwork (as hereinbefore defined) so as to substantially enclose the latter, the method including the step of fastening each of said boards to one side wall or to the base of a U-shaped metal channel into which a flange of the steelwork is received and retained therein by the boards fastened to said channel member.
2. A method according to claim 1 for attaching cladding boards to flanged structural steelwork, the method comprising the steps of fastening the base of a metal U-section channel member to each one of a pair of boards so that the arms of the U project substantially normally of the board, presenting the boards to the steelwork so that an oppositely directed flange thereof is received in each of said channels, presenting a third board to the other two so as to bridge the gap between them and lie against an arm of each channel followed by two fastening said third board to each of said arms.
3. A method according to claim 1 for attaching cladding boards to flanged structural steelwork, the method comprising joining two boards at right angles by fastening them to one arm and the base respectively of a U-shaped metal channel member to form an L-shaped assembly and fastening a second U-shaped metal channel member to one of said boards so that the arms of the U extend from the board parallel to those of the first channel member in the assembly; a second such assembly of opposite hand is then

formed and the two assemblies are presented to opposite sides of an I-section flanged structural steelwork joist so that the parallel flanges thereof are received in the respective parallel channels with an arm of each assembly abutted against one of the respective side walls of each of the second channel members, followed by fastening said arms to said side walls to substantially enclose the I-section joist.

4. A method according to any preceding claim wherein the boards are fastened to the channel by self-tapping screws.
5. A method of attaching cladding boards to flanged structural steelwork (as herein defined) substantially as described with reference to and as illustrated by the accompanying drawings.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>CH - A - 378 514</u> (ESSER) * complete document * --		F 16 S 1/02 E 04 F 13/10
A	<u>DE - U - 7 702 770</u> (HAHNE & LÜCKEL) * complete document * --		
A	<u>DE - A1 - 2 559 426</u> (PISTNER) * complete document * ----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.)
			E 04 B 1/00 E 04 F 13/00 F 16 S 1/00 F 16 S 3/00
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
Berlin	10-01-1980	PIEPER	