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

(11) Publication number: **0 165 809**
A2

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: 85304380.0

(51) Int. Cl.⁴: **E 04 F 19/00**

(22) Date of filing: 19.06.85

(30) Priority: 20.06.84 GB 8415669

(43) Date of publication of application:
27.12.85 Bulletin 85/52

(84) Designated Contracting States:
BE DE FR IT

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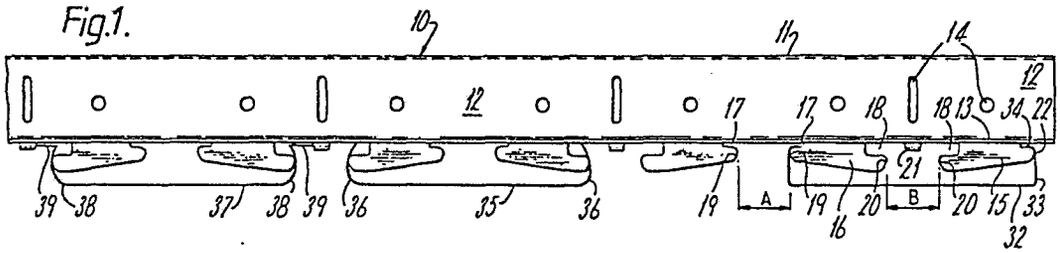
(54) **Panel carriers.**

(57) A panel carrier for a panelled cladding or ceiling system formed of elongated sheet metal, the carrier extending generally transverse to the panels themselves which are also formed of elongate sheet material. The carriers are provided with projections which define first pairs of spaces of a relatively low height and second pairs of spaces of a greater height, the distance between the tips of the projections defining the open ends of these spaces in each instance being the same.

Fig.1.



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TITLE: PANEL CARRIER

DESCRIPTION

The present invention relates to a panel carrier for a panelled cladding or ceiling system.

Such panel carriers are well known and usually comprise an elongate sheet metal body having a longitudinal axis and a plurality of projections which extend away from the body, the projections being positioned and shaped to support and hold elongate sheet material panels, for example formed of sheet metal such as aluminium, which extend with their longitudinal axes in an angled relation to the longitudinal axis of the carrier. Traditionally, the projections on the panel carriers are specifically shaped to engage the particular form of rim on the elongate panels which are to be supported.

It is now proposed, according to the present invention, to provide a panel carrier for a panelled cladding or ceiling system, said carrier comprising an elongate sheet metal body having a longitudinal axis and a plurality of projections, each extending away from said body, as a cantilever, said projections being positioned and shaped to support and hold any of a variety of types of elongate sheet material panels, extending with their longitudinal axes in an angled relation to the longitudinal axis of the carrier, said projections forming, between

themselves and the carrier body, open ended accommodation spaces for panel edge parts, said projections being positioned and shaped so that said spaces are in alternate first pairs and second pairs at given intervals, the spaces of each pair opening towards one another, the height of the spaces of the first pairs being slightly greater than the thickness of the panel material and the height of the spaces of the second pairs being slightly greater than a multiple of the thickness of the panel material, the distance between the tips of the projections defining the open ends of the spaces of each first pair being substantially equal to the corresponding distance between the tips of the projections defining the open ends of each second pair.

With such a construction, because the projections are mounted in cantilevered fashion and are positioned and shaped so that spaces are formed in alternate first and second pairs with the height of the spaces of the first spaces being of a different dimension to those of the second pairs, one can support a large number of different panel profiles. The specific design of the invention, however, is such as to enable panels of a standard width to be supported by the panel carrier, regardless of the actual form of the panels themselves. This, therefore, enables the panel carrier to be used for supporting a series of panels of a variety of types and indeed enables one to vary the panels in a particular ceiling or cladding structure to

give a particular decorative effect.

The body of the carrier can have a supporting part between the spaces of each second pair, said supporting part extending away from the body which is smaller than the height of the spaces of each said second pair by an amount equal to or slightly greater than double the thickness of the panel material, said supporting parts serving as an abutment surface for an outwardly extending side flange on a panel.

This supporting part is used to engage an outwardly extending flange formed on the inturned rim or edge of the panel to prevent that type of panel from accidentally disengaging from its respective space.

Each projection may be provided with a part defining a space of a first pair and a part defining a space of a second pair, said projections being provided alternately facing one way and then the opposite way along the length of the carrier to define said first and second pairs of spaces. Thus each projection provides one space of a first pair and one space of a second pair and cooperates with other projections to provide the other spaces of each pair.

The projections may be formed with a downwardly inclined camming surface extending from a tip of the projection defining a space of a first pair downwardly and away from the projection forming the other space of a first pair. In this way the camming surface can be used to

assist in mounting a panel on the carrier.

In an alternative construction, the projections forming the first pairs of spaces are formed separately from the projections forming the second pairs of spaces.

In order that the invention may more readily be understood, the following description is given, merely by way of example, reference being made to the accompanying drawings, in which:-

Figure 1 is a side elevation of one embodiment of panel carrier according to the invention;

Figure 2 is an end elevation of the panel carrier of Figure 1;

Figure 3 is a fragmentary plan view of the blank from which the carrier is formed, after punching and before bending; and

Figure 4 is a view similar to Figure 1 illustrating various different types of projection and how the two panel carriers can cooperate.

Referring first to Figures 1 and 2 the panel carrier 10 illustrated therein is of generally top hat cross-section (Figure 2) including a web 11 and two downwardly and slightly upwardly inclined side arms 12 each provided with an outwardly extending generally horizontal flange 13. The section is provided with the usual apertures 14 for securing or mounting the carrier to a supporting structure. The flanges 13 are each provided with downwardly bent projections 15, 16 which are cantilevered away from the

flange and in the same direction, the projections 15 and 16 being mirror images of one another. They are formed, as indicated in facing pairs forming a first pair of spaces 17 facing one another, these being spaced from the bottom surface of the flange 13 by a thickness slightly greater than the thickness of a panel to be mounted thereon. Each adjacent pair of projections 15, 16 also forms a second pair of spaces 18 having a height which is slightly greater than a multiple of the thickness of the panel material. It will be seen that the distance A between the tips 19 of the projections defining the open ends of the first spaces 17 is substantially equal to the distance B between the tips 20 defining the open ends of each second pair of spaces 18.

Located centrally between the spaces 18 of a second pair of spaces is a downwardly projecting supporting part 21, the downward extension being less than the height of the spaces 18 of a second pair by an amount greater than double the thickness of the panel material.

Figure 3 illustrates a blank 30 from which the panel carrier is to be formed and the various parts of the blank which have been punched out, are indicated by the same reference numerals as in Figures 1 and 2.

It will be noted that the surface 22 of the tip 19 forming the spaces of a first pair is inclined downwardly and generally towards the projection forming the space of a second pair of any given projection 15, 16.

This downward inclined surface serves two purposes. Firstly, it saves material, since this material can be punched out and recycled and secondly, it assists in mounting a panel as will be described later.

In fact Figure 1 illustrates the mounting of three different forms of panel. On the righthand side the panel 32 has an upturned rim 33 on each side, this rim being provided with an inwardly directed bead 34 which can engage in the first spaces 17. The camming surface 22 assists in flexing outwardly the flanges 13 as a panel is pushed upwardly.

In the centre a second form of panel is indicated and this is indicated by the reference numeral 35 and has curved inwardly directed flanges 36 of a fairly large radius of curvature, these engaging with their rims directly in the second spaces 18.

Finally, on the lefthand side there is illustrated a panel of a somewhat different type 37 having an inturned rim 38, rather similar to those of the panel 35, but then an outwardly extending flange adapted to engage the supporting part 21 to prevent the panel from accidentally disengaging from the projections.

Figure 4 illustrates a panel carrier which has a similar body portion 10; including legs 12 and flanges 13 and the projections 15, 16 shown at the centre are similar to those in Figure 1. However, alternative forms of projections are also illustrated. The projections 45

are of generally L-shaped construction and define thereabove the first spaces 47, the tips 49 being spaced apart by a distance A as before. The projections 46 define wider spaces 48 as before and have a downturned flap 50. On the lefthand side there are illustrated a further form of projection, these in fact being illustrated on two adjacent carriers. The actual projections 55 and 56 are generally similar to the projections 15 and 16 but they are in fact formed separately from one another. However, they function in exactly the same way as the projections 15 and 16. With any of these various types of projection, one can mount three different types of known cladding or ceiling panel very readily and it is very clear to the operative who is mounting the panel exactly how the panel should be mounted simply by looking at the shaping of the individual projections. In each instance, the pitch between projections is the same, so that because the spacing between the tips of adjacent projections forming a first pair or a second pair of spaces are the same, panels of the same width can always be mounted. Of course, if one wishes to mount panels of a different width, one would provide a different carrier or alternatively, one could use the projections of the same carrier provided that the width of the panel is a multiple of the pitch.

C L A I M S

1. A panel carrier for a panelled cladding or ceiling system, said carrier comprising an elongate sheet metal body having a longitudinal axis and a plurality of projections, each extending away from said body, as a cantilever, said projections being positioned and shaped to support and hold any of a variety of types of elongate sheet material panels, extending with their longitudinal axes in an angled relation to the longitudinal axis of the carrier, said projections forming, between themselves and the carrier body, open ended accommodation spaces for panel edge parts, said projections being positioned and shaped so that said spaces are in alternate first pairs and second pairs at given intervals, the spaces of each pair opening towards one another, the height of the spaces of the first pairs being slightly greater than the thickness of the panel material and the height of the spaces of the second pairs being slightly greater than a multiple of the thickness of the panel material, the distance between the tips of the projections defining the open ends of the spaces of each first pair being substantially equal to the corresponding distance between the tips of the projections defining the open ends of each second pair.

2. A panel carrier according to claim 1, wherein the body of the carrier has a supporting part between the spaces of each second pair, said supporting part extending away from the body which is smaller than the height of the spaces of each said second pair by an amount equal to or slightly greater than double the thickness of the panel material, said supporting parts serving as an abutment surface for an outwardly extending side flange on a panel.

3. A panel carrier according to claim 1 or 2, wherein each projection is provided with a part defining a space of a first pair and a part defining a space of a second pair, said projections being provided alternately facing one way and then the opposite way along the length of the carrier to define said first and second pairs of spaces.

4. A panel according to claim 3, wherein the projections are formed with a downwardly inclined camming surface extending from a tip of the projection defining a space of a first pair downwardly and away from the projection forming the other space of a first pair.

5. A panel carrier according to claim 1 or 2, wherein the projections forming the first pairs of spaces are formed separately from the projections forming the second pairs of spaces.

Fig.1.

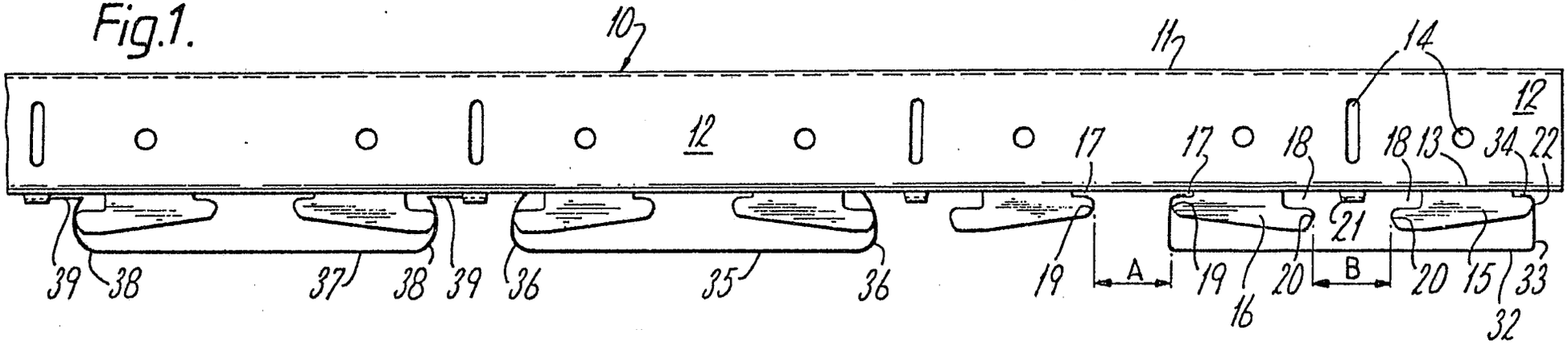


Fig.2.

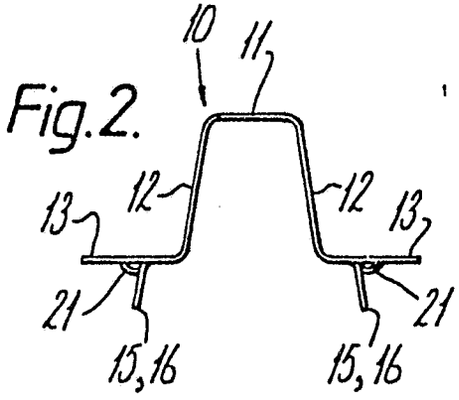
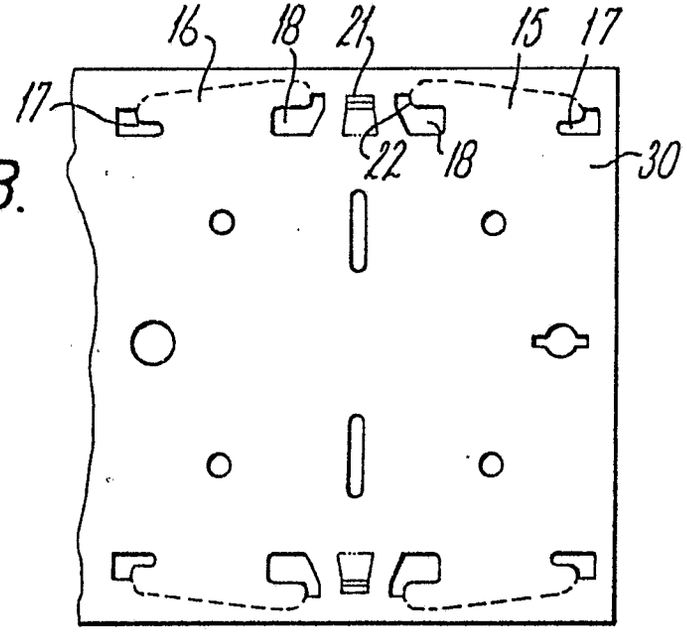


Fig.3.



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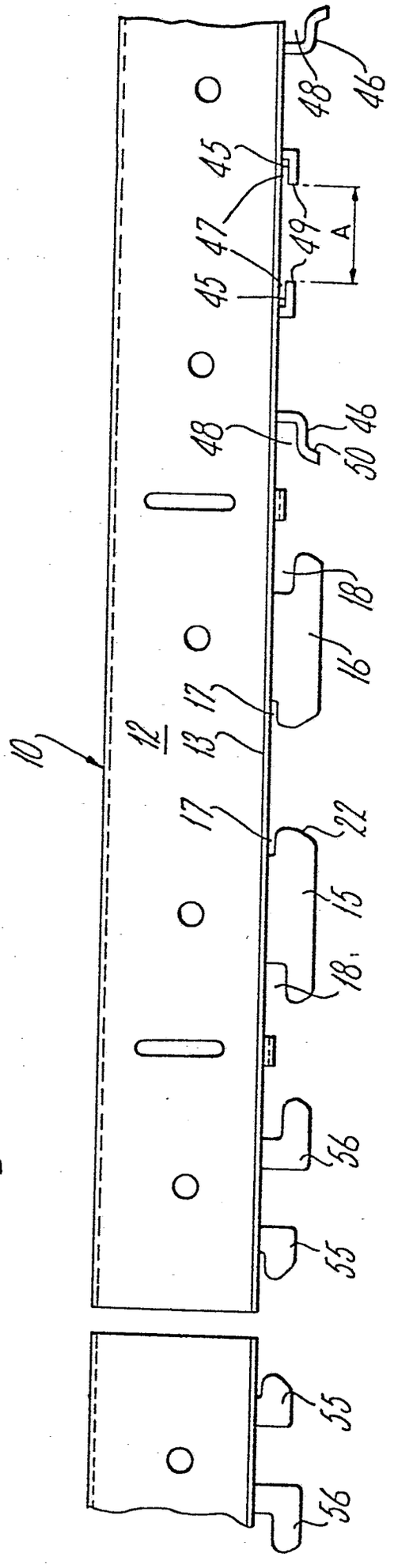

Fig.4.