PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in and relating to the Attachment of Insulating or like Sheets or Slabs to the Purlins or like Members of Walls, Roofs or Partitions

I, BERT INKLEY, of 16, Queensthorpe Road, Sydenham, London, S.E.26, a British Subject, do hereby declare the nature of this invention to be as follows :—

The invention relates to the attachment of insulating or like sheets or slabs to the purlins or like members of walls, roofs or partitions.

The object of the invention is to provide a rigid and adjustable support for the sheets or slabs, without necessarily bolting them down to the main structure.

The present invention consists in an assembly for forming a roof, wall or partition comprising purlins, thin metal bars or sections transversely disposed thereon, an outer casing and an inner casing formed in sheets wherein the sheets and metal sections are held between the outer casing and purlins, the arrangement being such that when viewed from the inside the adjacent edges of adjacent sheets running in one direction are positioned behind the purlins and those running in the other direction behind the metal sections.

In one construction I attach sheets or slabs of insulating material of uniform size between the underside of the corrugated iron sheets or other roofing material and the purlins supporting the said roofing, the purlins are fixed transversely over the principals, being preferably parallel to each other and spaced apart a distance equal to the width or length of the sheets or slabs as may be most convenient. These purlins are preferably of angle iron with the flat uppermost and supporting the edges of the sheets or slabs.

These purlins serve to support a plurality of special thin metal bars or sections stiffened or ribbed longitudinally. A section formed with a central plane strip having trough-like longitudinal sides of substantially semi-circular or **U**-shaped cross section these sides depending below the plane of the central portion of the section has been found suitable.

In order that each bar or section may seat itself firmly on its associated purlins the stiffener or rib, or in the specific example, the depending trough-like portion, is cut away on each side of the section where it crosses its purlins so that the centre or plane portion of the section only is adapted to seat itself thereon.

These sections support abutting edges of adjacent slabs. Intermediate sections may be necessary to assist in supporting the sheets or slabs.

The sections are preferably of sufficient length to span two or three purlins, and each end having a ribbed portion cut away equal to half the width of the flat member of the purlin and similar portion cut away at the centre to fit easily across the intermediate purlin. The edges of the ribs adjacent to their cut away portion position the section and prevent any slip endwise of the section on the purlins.

By attaching the sections to the purlins in this manner it is possible to adjust them relatively to each other to suit any particular size of sheet or slab.

The sheets or slabs of insulating material are disposed over the sections and may be secured thereto by screws or other means if desired.

The insulation may be covered by corrugated iron or metal or other sheet material and secured by screws, bolts, or by wires passing from the top of the corrugation through the insulation and section and each of which is so bent at its extremity as to form a hook member passing beneath the purlin, thus securely holding the several parts in position.

In some cases a steel section having trough-like sides with outwardly extending flanges may be employed. With this arrangement guide blocks are fixed to the insulation at a suitable distance from the edges, being secured to the insulation by means of screws or the like, these guide blocks being adapted to rest within the troughing. In this particular modification also the distance between the centre lines of adjacent purlins is preferably approximately equal to the length of the slabs, while the distance between the sections is such that the abutting longitudinal edges of the contiguous sections

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are disposed approximately over the centre line of the special section. By this means the insulating slabs merely have to be slidden into position over the special sections without being secured thereto and to the purlin in any manner, the blocks acting as guiding members to the slabs.

In a further modification the thin metal sections are **T**-shaped, each having its transverse member preferably formed with stiffened longitudinal edges as previously described, the **T** section being inverted when in position and resting on the portion with the web or tail of the **T** upstanding between the two confronting edges of adjacent pairs of slabs. Such an arrangement materially increases the rigidity of the structure and also prevents side slip of the slabs.

Various minor modifications may be made in the means employed to secure the sections to the purlins and the insulating sheets or slabs to the special section, such modifications as these coming within the scope of my invention.

Dated this 27th day of July, 1936.

MEWBURN, ELLIS & CO.,
70 & 72, Chancery Lane, London, W.C.2,
Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in and relating to the Attachment of Insulating or like Sheets or Slabs to the Purlins or like Members of Walls, Roofs or Partitions

I, BERT INKLEY, of 16, Queensthorpe Road, Sydenham, London, S.E.26, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the attachment of insulating or like sheets or slabs to the purlins or like members of walls, roofs or partitions.

The object of the invention is to provide a rigid and an adjustable support for the sheets or slabs, without necessarily bolting them down to the main structure.

The present invention consists in an assembly for forming a wall, roof or partition comprising purlins, thin metal bars or sections transversely disposed thereon, an outer casing and an inner casing formed in sheets or slabs (hereinafter referred to as "sheets") wherein the sheets and metal sections are held between the outer casing and the purlins, the arrangement being such that when viewed from the inside the adjacent edges of adjacent sheets running in one direction are positioned behind the purlins and those running in the other direction behind the metal sections.

The sheets may be of any desired material for example, fibre board, asbestos board or the like.

Other features of the invention will be apparent as the description proceeds.

A preferred embodiment of my invention will now be described in its application to a steel ridge roof truss construction, including minor modifications of certain structural details, reference being made to the accompanying drawings wherein:—

Figure 1 is a half cross section through such a roof principal;

Figure 2 is a half plan of the arrangement shown in Figure 1 showing a typical bay;

Figure 3 is a section on an enlarged scale on the line III—III of Figure 2;

Figure 4 is a section also on an enlarged scale on the line IV—IV of Figure 2; and

Figure 5 is a view corresponding to a portion of Figure 4 showing a modified form of steel section.

In the assembly shown according to Figures 1 to 4 the main roof truss is shown generally at 1 and supported on columns or stanchions 2 in the usual manner.

Angle iron cleats 4 are secured to the top members 2 of the roof trusses by rivetting or otherwise to form a convenient means of attachment for the purlins 5. The spacing of the purlins and their supporting cleats is such that the abutting edges of adjacent sheets 6 are adapted to rest on the top flanges of the angle iron purlins.

The purlins are in turn bridged by the thin metal sections 10 of general **T** form having an upstanding central member 11 by which the adjacent edges of adjacent sheets 6 are spaced and two interconnected side stiffening channels 12 as shown. The stiffening channels where they cross the purlin are cut away, whereby the flat metal central portion thereof is adapted to seat itself upon the top face of the angle iron purlin. These thin metal sections may be secured to the purlins by means of screws or the like. The distance between the centres of these adjacent thin metal cover strips is equal to the width or breadth as the case may be of the sheets 6 dependent upon their disposition over the purlins.

Externally to the sheets 6 a corrugated iron outer casing 14 is disposed, the separate overlapping edges of this outer casing being connected together by screws 15 or other means, the said casing being secured rigidly in position by means of hook bolts 16 passing through the overlapping crowns of the corrugations and the sheets. The inner end portion of each bolt is formed with a hook 17 adapted to engage the edge of the angle iron purlin 5, the opposite end being fitted with a nut and washer 18 whereby the parts may be securely and rigidly connected together.

In some cases the central member 11 on the metal strip 10 may be dispensed with and the two confronting faces of adjacent insulating slabs brought into a substantially abutting relationship one with the other.

By cutting away the stiffening channels 12 from that part of the thin metal strip where it crosses the purlin it will be obvious that relative movement of the thin metal strip over the purlin in one direction is prevented.

Figure 5 shows a modified form of light steel section comprising two trough-like stiffening members 19 of substantially square section interconnected by a flat web 20 and having outwardly disposed flanges 21. With this arrangement wooden strips 22 may be secured as shown to the end faces of the proximate abutting edges of adjacent insulating slabs by which means the insulating slabs can be readily slidden into position.

The metal sections are preferably of sufficient length to span two or three purlins. In the former case the end of each section has the stiffening channels cut away a distance substantially equal in length to half the width of the plane member of the purlin. Where the metal sections are adapted to span more than two purlins portions of the stiffening channels are cut away intermediate the two ends of the section for a distance substantially equal to the width of the purlin to enable the section to fit snugly across the intermediate purlin or purlins.

The edges of the stiffening channels adjacent to their cut away portions position the section and prevent any slip endwise of the section on the purlins. By attaching the sections to the purlins in this manner it is possible to adjust them relatively to each other to suit any particular size of sheet or slab.

The sheets or slabs of insulating material may be secured to the sections by screws or other means, if desired.

The corrugated iron outer casing may be dispensed with and other metal or other sheet material employed while the hook bolts may be replaced by screws or by wires passing through the top of the corrugation through the insulation and bent at their extremity.

The cross section of the thin metal bars or sections and of the purlins may be modified as desired.

Further, I wish it to be understood that various modifications may be made in the means employed to secure the sections to the purlins and insulating sheets or slabs to the special section, within the scope of my invention.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. Assembly for forming a roof, wall or partition comprising purlins, thin metal bars or sections transversely disposed thereon, an outer casing and an inner casing formed in sheets wherein the sheets and metal sections are held between the outer casing and the purlins, the arrangement being such that, when viewed from the inner side, the adjacent edges of adjacent sheets running in one direction are positioned behind the purlin and those running in the other direction behind the metal section.

2. Assembly according to Claim 1 wherein the outer casing is removably secured to the purlin by bolts or like members passing through the said casing and having their attachment on the lower edge of the purlin.

3. Assembly according to Claim 1 or 2 wherein the outer casing is of corrugated metal.

4. Assembly according to Claim 1 wherein the adjacent edges of adjacent sheets are spaced by a part of the metal bar or section.

5. The assembly for attaching insulating or like sheets or slabs to the purlins or like members of walls, roofs or partitions, constructed and arranged substantially as described with reference to Figures 1, 2, 3, 4 and 5 of the accompanying drawings.

Dated this 8th day of March, 1937.

MEWBURN, ELLIS & CO.,
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Chartered Patent Agents.

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Externally to the sheets 6 a corrugated iron outer casing 14 is disposed, the separate overlapping edges of this outer casing being connected together by screws 15 or other means, the said casing being secured rigidly in position by means of hook bolts 16 passing through the overlapping crowns of the corrugations and the sheets. The inner end portion of each bolt is formed with a hook 17 adapted to engage the edge of the angle iron purlin 5, the opposite end being fitted with a nut and washer 18 whereby the parts may be securely and rigidly connected together.

In some cases the central member 11 on the metal strip 10 may be dispensed with and the two confronting faces of adjacent insulating slabs brought into a substantially abutting relationship one with the other.

By cutting away the stiffening channels 12 from that part of the thin metal strip where it crosses the purlin it will be obvious that relative movement of the thin metal strip over the purlin in one direction is prevented.

Figure 5 shows a modified form of light steel section comprising two trough-like stiffening members 19 of substantially square section interconnected by a flat web 20 and having outwardly disposed flanges 21. With this arrangement wooden strips 22 may be secured as shown to the end faces of the proximate abutting edges of adjacent insulating slabs by which means the insulating slabs can be readily slidden into position.

The metal sections are preferably of sufficient length to span two or three purlins. In the former case the end of each section has the stiffening channels cut away a distance substantially equal in length to half the width of the plane member of the purlin. Where the metal sections are adapted to span more than two purlins portions of the stiffening channels are cut away intermediate the two ends of the section for a distance substantially equal to the width of the purlin to enable the section to fit snugly across the intermediate purlin or purlins.

The edges of the stiffening channels adjacent to their cut away portions position the section and prevent any slip endwise of the section on the purlins. By attaching the sections to the purlins in this manner it is possible to adjust them relatively to each other to suit any particular size of sheet or slab.

The sheets or slabs of insulating material may be secured to the sections by screws or other means, if desired.

The corrugated iron outer casing may be dispensed with and other metal or other sheet material employed while the hook bolts may be replaced by screws or by wires passing through the top of the corrugation through the insulation and bent at their extremity.

The cross section of the thin metal bars or sections and of the purlins may be modified as desired.

Further, I wish it to be understood that various modifications may be made in the means employed to secure the sections to the purlins and insulating sheets or slabs to the special section, within the scope of my invention.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. Assembly for forming a roof, wall or partition comprising purlins, thin metal bars or sections transversely disposed thereon, an outer casing and an inner casing formed in sheets wherein the sheets and metal sections are held between the outer casing and the purlins, the arrangement being such that, when viewed from the inner side, the adjacent edges of adjacent sheets running in one direction are positioned behind the purlin and those running in the other direction behind the metal section.

2. Assembly according to Claim 1 wherein the outer casing is removably secured to the purlin by bolts or like members passing through the said casing and having their attachment on the lower edge of the purlin.

3. Assembly according to Claim 1 or 2 wherein the outer casing is of corrugated metal.

4. Assembly according to Claim 1 wherein the adjacent edges of adjacent sheets are spaced by a part of the metal bar or section.

5. The assembly for attaching insulating or like sheets or slabs to the purlins or like members of walls, roofs or partitions, constructed and arranged substantially as described with reference to Figures 1, 2, 3, 4 and 5 of the accompanying drawings.

Dated this 8th day of March, 1937.

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