

A RETAINING CLIP

TECHNICAL FIELD

5 The present invention relates to a retaining clip for concealed fixing of a cladding to an anchor. More particularly, the present invention relates to the concealed fixing of roofing to a roof structure, and will be described primarily with reference to this application.

BACKGROUND ART

15 Certain kinds of roofing sheets are conveniently fixed to the roof structure using a retaining clip. Suitable clips are formed as a strap which is folded at either end so that each end turns upwardly at 90° but has a generally U-shaped formation at the very end of one said end. The U-shaped formation has detents formed on either leg of the U. The U-shaped formation together with the detents formed thereon acts as a retaining formation able to be snap-fitted into a channel on a sheet of roofing positioned appropriately thereon. The other end of the strap does not have the second leg of the U at its very end, and has only a single detent as a result. This end of the clip is adapted to rest upon the edge of a sheet of roofing already laid, and then to have a second sheet snap-fitted to the single detent. Thus, the roofing sheets are secured in overlapping engagement. However, this arrangement requires that each sheet must be laid and secured with the clip before the next sheet can be laid. This is an inconvenient and time-consuming method of laying roofing. Accordingly,

the present invention provides a technique of laying cladding such as roofing which allows the retaining clips to be laid and the cladding to be fitted thereto once all of the clips have been laid.

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SUMMARY OF THE INVENTION

According to a first aspect of the present invention there is provided a retaining clip for
10 concealed fixing of a cladding to an anchor, comprising:
an elongated base adapted for securement to said anchor;
a first upright cladding engagement member at one end of
said elongated base; and
a second upright cladding engagement member at the other
15 end of said elongated base;
each of said first and second upright cladding
engagement members including detent means able to be
received in a complementary recess in said cladding;
characterised in that:
20 said first upright cladding engagement member is adapted
for operative association with the second upright
cladding engagement member of an adjacent clip to form a
composite upright cladding engagement member including
composite detent means, whereby the two clips may be
25 laid together in an appropriate configuration for said
cladding to be fitted to said composite upright cladding
engagement member.

Preferably, said first upright cladding
engagement member includes engagement means for engaging
30 said second upright cladding engagement member.
Alternatively, said first upright cladding engagement
member and said second upright cladding engagement
member could be brought into operative association

merely by abutting in an appropriate configuration provided they are secured in this position.

More preferably, said engagement means comprises a second detent on a first face of said second upright
5 cladding engagement member and said second detent is adapted for receipt in a complementary depression formed in said first upright cladding engagement member so as to form said composite detent means. Advantageously, said first upright cladding engagement member includes a
10 first detent on a first face of said first upright cladding engagement member and said depression is an opening to said first detent from the rear of said first face. Alternatively, in place of said first detent, said first face of said first upright cladding
15 engagement member may simply have an orifice formed therein through which said second detent on said first face of said second upright cladding engagement member extends.

Advantageously, said detent means further
20 comprises a third detent on a second face of said first upright cladding engagement member.

Advantageously, said first face of said first upright cladding engagement member and said first face of said second upright cladding engagement member lie in
25 parallel planes.

Typically said first and second faces of said first upright cladding engagement member are spaced apart by a spacer member. The spacer member generally lies in a plane parallel to the elongated base of the
30 clip and said second upright cladding engagement member usually includes an extension from said first face in this plane. The extension would generally be approximately the same length as the spacer member so

that the spacer member lies above and is co-extensive with the extension when two adjacent clips are placed in operative association.

According to a second aspect of the present invention there is provided a cladding system comprising a plurality of clips as described above and a cladding. Such cladding systems will often be sold in kit form.

BRIEF DESCRIPTION OF THE DRAWINGS

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Figure 1 is a perspective view showing installation of a roofing sheet using a prior art retaining clip;

Figure 2 is a side view of a clip in accordance with the present invention;

Figure 3 is a perspective view of the clip shown in Figure 2;

Figure 4 illustrates a cladding sheet profile for use with clips in accordance with the present invention;

Figures 5A to 5C are schematic side views illustrating the installation procedure; and

Figure 6 is a side view of a plurality of the clips in accordance with the present invention when installed.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 shows the installation of a roofing sheet using a prior art retaining clip. The method of fixing using such clips involves securing cladding sheet 15a to purlin 17, then securing clip 10 to purlin 17 with the retaining formation 11a overlapping rib 16a as

shown. Retaining formation 11a includes detent 12 on its inside edge. The clip 10 further comprises an elongated base by which it is secured to purlin 17 with screws 18a, 18b, and a second retaining formation 11b, which is generally U-shaped in configuration, and has detents on each of the legs of the U.

A second cladding sheet 15b comprises a terminal rib 13b with pan sections between it and the adjacent rib 14b. In order to secure the second cladding sheet 15b to purlin 17 the sheet 15b is pressed onto the secured clip 10 in an orientation such that rib 13b is pushed over rib 16a and the retaining formation 11a, ensuring that detent 12 snaps into the portion of rib 13b adapted to receive it. Similarly, rib 14b is pressed onto retaining formation 11b and the detents on retaining formation 11b are received in rib 14b. Once sheet 15b is secured in this manner, another clip is screwed to purlin 17, and a further cladding sheet can then be fixed. This is, however, a somewhat time-consuming procedure and the present invention, as described herein with reference to Figures 2 to 6, allows all the retaining clips to be laid and then the roofing sheets to be secured thereon subsequently.

Figures 2 and 3 illustrate a retaining clip 20 in accordance with the present invention. The clip 20 has an elongated base 21, in this case a metal strap, with fastener holes 23a formed therein. The strap is folded upwardly at two points, one to either end of the strap, to form first and second upright cladding engagement members 22a, 22b. In each case the strap is folded through angle x , which is less than 90° but greater than 45° , and preferably around 70° , to create the upright cladding engagement members 22a, 22b. The

very end of the strap is bent further, in the case of first upright cladding engagement member 22a, to create a surface hereinafter referred to as spacer member 29 and a downwardly extending portion, hereinafter referred to as first face 25a of first upright cladding engagement member 22a. At the other extremity of the strap there is only a single fold to create extension 31 of first face 30 of the second upright cladding engagement member 22b. From left to right as shown in Figure 2, the clip 20 comprises the following surfaces: first face 25a of first upright cladding engagement member 22a, spacer member 29 which spaces said first face from the second face 25b, second face 25b of first upright cladding engagement member 22a, elongated base 21, first face 30 of second upright cladding engagement member 22b and the extension 31 of said first face 30. The angles between the respective faces are such that each of the upright cladding engagement members 22a, 22b is a hump-shaped formation capable of being received within a rib of a cladding sheet 28 as shown in Figure 4.

The clip 20 also includes detents 24a,b,c formed on the first face 25a of the first upright cladding engagement member 22a, the first face 30 of the second upright cladding engagement member 22b and the second face 25b of the first upright cladding engagement member 22a, respectively. With reference to Figure 3, it will be apparent that the detent 24a is hollow and open to the rear surface of first face 25a of first upright cladding engagement member 22a. Thus, a depression 32 is created in the rear of first face 25a. Furthermore, as the detent 24b is approximately the same size as detent 24a, or slightly smaller than detent 24a, detent

24b can be received within detent 24a when it enters via depression 32 in the rear surface of said first face 25a. In this configuration the extension 31 of said second face 30 fits beneath spacer member 29 and so the
5 second upright cladding engagement member 22b resides beneath said first upright cladding engagement member 22a. Thus a composite upright cladding engagement member 33 (best seen in Figure 5C) is formed with a detent on either side thereof, one said detent being
10 detent 24a and the other said detent being detent 24c. Composite upright cladding engagement member 33 is also a hump-shaped formation capable of being received in the rib of a cladding sheet 28 as shown in Figure 4.

It will be appreciated that the shape of the
15 upright cladding engagement member 33 is complementary to the orifice in the underside of rib 27 and further that the detents 24a,c on either side of the composite upright cladding engagement member 33 will be received in complementary recesses 40, 42 respectively. Thus,
20 the cladding 28 can be snap-fitted onto an array of two or more clips 20 juxtaposed as described above. With respect to rib 26, located at one end of the sheet, it will be appreciated that detent 24a on the first upright cladding engagement member 22a will be available for
25 engagement if this clip is the terminal clip in the array. At the other end of the cladding 28, recess 44 will receive detent 24c of the next clip in the array if a further cladding sheet is to be added or will be vacant if this is the terminal cladding sheet.

30 The manner in which an array of clips 20 in accordance with the present invention is assembled is illustrated in Figures 5A to 5C. As best seen in Figure 5A, the first clip 20a is secured to the purlin 35 by

fasteners 34, which are typically screws. An insulation blanket 41 is generally laid on purlin 35 before fastening the clips thereto. As shown in Figure 5B, the second clip 20b is manoeuvred into a position where
5 detent 24b can be received in the orifice 32 in the rear surface of the first face 25a of the first upright cladding member 22a. Detent 24b fits neatly into the rear of detent 24a, thus first surface 30 of second upright cladding engagement member 22b abuts the rear
10 surface of first face 25a of first upright cladding engagement member 22a, and the spacer member 29 rests on extension 31 of said second face 30. Thus, a composite upright cladding engagement member 33 is formed in the manner described above. Once in position, the second
15 clip 20b is fastened to purlin 35 using fasteners 34, and this is shown in Figure 5C.

It will be appreciated that a plurality of such clips can be laid end to end, and this arrangement is shown in Figure 6. In Figure 6 clips 20a, 20b, 20c and
20 20d have all been laid end to end in the manner described above, to create an array of clips adapted to receive a cladding 28 of the type illustrated in Figure 4. It will be appreciated that this array is built up first and then the cladding sheets 28 snap-fitted in a
25 second operation. This avoids the need, as in the prior art, to affix one clip, then lay a cladding sheet, then affix a second clip and lay a second cladding sheet, and so on.



THIS SHEET HAS BEEN
REPLACED

CLAIMS

1. A retaining clip (20) for concealed fixing of a cladding (28) to an anchor (35) comprising:
 - 5 an elongated base (21) adapted for securement to said anchor (35);
 - a first upright cladding engagement member (22a) at one end of said elongated base (21); and
 - a second upright cladding engagement member (22b) at the
 - 10 other end of said elongated base (21);
 - each of said first and second upright cladding engagement members (22a, 22b) including detent means able to be received in a complementary recess (40, 42) in said cladding (28);
 - 15 characterised in that:
said first upright cladding engagement member (22a) is adapted for operative association with the second upright cladding engagement member (22b) of an adjacent clip (20) to form a composite upright cladding
 - 20 engagement member (33) including composite detent means, whereby the two clips may be laid together in an appropriate configuration for said cladding to be fitted to said composite upright cladding engagement member.
2. A retaining clip (20) as claimed in claim 1
- 25 wherein said first upright cladding engagement member (22a) includes engagement means for engaging said second upright cladding engagement member (22b).
3. A retaining clip (20) as claimed in claim 2
- wherein said engagement means comprises a second detent
- 30 (24b) on a first face (30) of said second upright cladding engagement member (22b) and said second detent (24b) is adapted for receipt in a complementary depression (32) formed said first upright cladding





engagement member (22a) so as to form said composite detent means.

4. A retaining clip (20) as claimed in claim 3 wherein said first upright cladding engagement member (22a) includes a first detent (24a) on a first face (25a) of said first upright cladding engagement member (22a), and said depression (32) is the opening to said first detent (24a) from the rear of said first face (25a).
5. A retaining clip (20) as claimed in claim 4 wherein said composite detent means further comprises a third detent (24c) on a second face (25b) of said first upright cladding engagement member (22a).
6. A retaining clip (20) as claimed in claim 4 wherein said first face (25a) of said first upright cladding engagement member (22a) and said first face (30) of said upright cladding engagement member (22b) lie in parallel planes.
7. A retaining clip (20) as claimed in claim 6 wherein said first face (25a) and said second face (25b) of said first upright cladding engagement member (22a) are spaced apart by a spacer member (29).
8. A retaining clip (20) as claimed in claim 7 wherein said second upright cladding engagement member (22b) has an extension (31) from said first face (30) in the same plane as said spacer member (29).
9. A cladding system comprising a plurality of clips (20) in accordance with any one of claims 1 to 8 and at least one cladding sheet (28).
10. A cladding system as claimed in claim 9 in kit form.

