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(54) Improvements to fibre cement V-ridges

V-förmiges Firstelement aus Faserzement

Elément de faîtage de fibro-ciment en forme de V

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EP 1 378 616 B1

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Description**TECHNICAL FIELD**

[0001] This invention relates generally to double-lap slating, and particularly to improvements made to fibre cement V-ridges; see for example US-A-1387235.

BACKGROUND OF THE INVENTION

[0002] Because of its various properties, fibre cement slates have been used instead of concrete tiles and the like. Their smooth surface and dressed edges closely resemble natural slate. With their light weight, strength and durability, fibre cement slates, including V-ridges, are economical and authentic.

[0003] Traditionally, fibre cement V-ridges are manually made, but they are also injection moulded recently. Prior art V-ridges are of a single thickness throughout. One end of the prior art V-ridge is a lap portion which is recessed as seen in Figure 1a. The other end of the ridge is a large roof portion of the same thickness. In double-lap slating as shown in Figure 1b, the lap portion of one ridge and the roof portion of an adjacent ridge are overlaid. This means that the portions in contact are thicker than the thickness of the lengthwise roof portion. When these ridges are eventually placed over purlins, the purlins support the weight of the ridges at these contacting and overlaid portions, whereas the rest of the lengthwise roof portions are suspended away from the purlins, and hence not supported. These are considered as weak spots during fixing or installation.

[0004] The apex of the V-shape results in a bending line for the V-ridge. This is a structural weakness of V-ridges. The bending line is prone to cracking during subsequent handling, fixing or installation.

SUMMARY OF THE INVENTION

[0005] The present invention has therefore as an object to improve fibre cement V-ridges so that they are structurally stronger and more stable.

[0006] This object is achieved in that at least one intermediate traverse reinforcement is integrally provided on the under-side of a V-ridge when in use, the thickness of the traverse reinforcement being substantially the same as the combined thickness of the contacting and overlaid portions between two adjacent ridges. Additionally, a lengthwise reinforcement is integrally provided along the under-side of at least half of a bending line of the V-ridge.

[0007] Another object of the invention is to provide traverse drainage slots on a lap portion, in order to lead out water, in case water happens to seep through in between the contacting and overlaid portions.

[0008] Yet, another object of the invention is to identify an injection point for making the fibre cement V-ridges according to the invention.

BRIEF DESCRIPTION

[0009] A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1a shows in perspective an under-side view of a prior art

Figure 1b shows diagrammatically a cross-section side view of two contacting and overlaid prior art.

Figure 2 shows a perspective view of one specific embodiment of the invention.

Figure 3 shows an end view of the invention as shown in Figure 2.

Figure 4 shows a side view of the invention as shown in Figure 2.

Figure 5 shows in perspective an under-side view of the invention as shown in Figure 2.

Figure 6a shows diagrammatically a cross-section side view of two contacting and overlaid V-ridges made according to this invention.

Figure 6b shows an exploded cross-section view of two contacting and overlaid V-ridges shown in Figure 6a, illustrating two drainage slots.

DETAILED DESCRIPTION

[0010] Referring to one specific embodiment of the invention as shown in Figures 2, 3 and 4, a V-ridge (10) consists of substantially a large roof portion (11) of V-shape, and a recessed lap portion (12) at one end of the roof portion (11). In two dimensions viewing, a V-shape is made out from two outreaching arms, but in three dimensions viewing of the V-ridge (10), the arm takes the form of a plane. Throughout the description, "traverse" and "lengthwise" have been used. By "traverse", it is meant "in the direction of the outreaching arms or planes of the V-ridge". By "lengthwise", it is meant "an axis perpendicular to the V-shape".

[0011] When installed or in use, the V-ridge (10) is placed with its apex (13) at a higher position. A bending line is formed along the length of the V-ridge (10) at the position of the apex (13). It is important to note that the inclined angle between two outreaching arms or planes of the V-ridge can be varied depending on building applications.

[0012] Throughout the following description, the word "upper-side" or "under-side" connotes element of the V-ridge when it is installed or in use. Two traverse drainage slots (14) are integrally provided on the upper-side of the lap portion (12). When in use, the V-ridges (10) are over-

laid, one over the other. The drainage slots (14) provide a means for water between the contacting and overlaid portions of the V-ridges (10) to run off. Otherwise, water may seep through crevices between the V-ridges (10).

[0013] As shown in Figure 5, the invention has been turned over to show an intermediate traverse reinforcement (15) integrally provided on the under-side of the V-ridge (10). The thickness of the intermediate traverse reinforcement (15) is substantially the same as the combined thickness of the lap portion (12) and the roof portion (11). It is important to note that the width of the intermediate traverse reinforcement (15) is enlarged somewhat.

[0014] A lengthwise reinforcement (17) is integrally provided along the under-side of at least half of the bending line of the V-ridge (10). This adds to the structural strength of the V-ridge (10) which will not be easily cracked along the bending line. The thickness of the lengthwise reinforcement (17) is substantially the same as the thickness of the intermediate traverse reinforcement (15).

[0015] It is important to note that a preferred injection point (16) is disposed at the under-side of the intermediate traverse reinforcement (15) or lengthwise reinforcement (17). The injection point (16) corresponds to the largest thickness of the V-ridge (10). If the injection point (16) is located elsewhere, the moulding process will not be efficient.

[0016] When the V-ridges (10) are installed or in use, their relative positions are shown in Figures 6a and 6b. Evidently, the underlying purlins support the V-ridges (10) at the positions of the intermediate traverse reinforcement (15) as well as the contacting and overlaid portions of the lap portions (12) and the roof portions (11). These in-contact positions represent support points between the purlins and the V-ridges (10). The intermediate traverse reinforcement (15) shortens the unsupported length of the V-ridges, hence increases the structural strength of the V-ridges (10).

[0017] From the above description, it is clear that both the intermediate traverse reinforcements (15) and the lengthwise reinforcements (17) increase the structural strength of the V-ridges (10) according to this invention.

Claims

1. A fibre cement V-ridge (10) comprising substantially a large roof portion (11) of V-shape and a recessed lap portion (12) at one end of the roof portion (11), **characterised in that** at least one intermediate traverse reinforcement (15) is integrally provided on the under-side of two out-reaching arms or planes of its roof portion (11).
2. A fibre cement V-ridge (10) as in Claim 1 in which a lengthwise reinforcement (17) is integrally provided along the under-side of at least half of a bending line of the V-ridge (10).

3. A fibre cement V-ridge (10) as in Claim 1 in which the thickness of the intermediate traverse reinforcement (15) is substantially the same as the combined thickness of the lap portion (12) and the roof portion (11).
4. A fibre cement V-ridge (10) as in Claim 3 in which the width of the intermediate traverse reinforcement (15) is enlarged.
5. A fibre cement V-ridge (10) as in Claim 1 in which at least one traverse drainage slot (14) is integrally provided on the upper-side of the lap portion (12) when the V-ridge (10) is in use.
6. A fibre cement V-ridge (10) as in Claim 1 in which the V-ridge (10) is injection moulded and a preferred injection point (16) is disposed at the under-side of the intermediate traverse reinforcement (15).
7. A fibre cement V-ridge (10) as in Claim 2 in which the thickness of the lengthwise reinforcement (17) is substantially the same as the thickness of intermediate traverse reinforcement (15).
8. A fibre cement V-ridge (10) as in Claim 2 in which the V-ridge (10) is injection moulded and a preferred injection point (16) is disposed at the under-side of the lengthwise reinforcement (17).

Patentansprüche

1. Eine Faserzement-V-Kante (10), aufweisend im Wesentlichen ein großes Dachteil (11) mit V-Form und ein ausgespartes Überlappungsteil (12) an einem Ende des Dachteils (11), **dadurch gekennzeichnet, dass** zumindest eine dazwischenliegende Querverstärkung (15) integral auf der Unterseite von zwei nach außen reichenden Armen oder Ebenen von dessen Dachteil (11) angebracht ist.
2. Faserzement-V-Kante (10) wie in Anspruch 1, in welcher eine Längsverstärkung (17) integral entlang der Unterseite von zumindest der Hälfte einer Biegelinie der V-Kante (10) angebracht ist.
3. Faserzement-V-Kante (10) wie in Anspruch 1, in welcher die Dicke der dazwischenliegenden Querverstärkung (15) im Wesentlichen die gleiche ist wie die kombinierte Dicke des Überlappungsteils (12) und des Dachteils (11).
4. Faserzement-V-Kante (10) wie in Anspruch 3, in welcher die Breite der dazwischenliegenden Querverstärkung (15) vergrößert ist.
5. Faserzement-V-Kante (10) wie in Anspruch 1, in welcher

cher zumindest ein Querdrainageschlitz (14) integral auf der Oberseite des Überlappungsteils (12) angebracht ist, wenn die V-Kante (10) verwendet wird,

6. Faserzement-V-Kante (10) wie in Anspruch 1, in welcher die V-Kante (10) spritzgegossen wird und sich ein bevorzugter Einspritzpunkt (16) auf der Unterseite der dazwischenliegenden Querverstärkung (15) befindet.
7. Faserzement-V-Kante (10) wie in Anspruch 2, in welcher die Dicke der Längsverstärkung (17) im Wesentlichen die gleiche ist wie die Dicke der dazwischenliegenden Querverstärkung (15).
8. Faserzement-V-Kante (10) wie in Anspruch 2, in welcher die V-Kante (10) spritzgegossen ist und sich ein bevorzugter Einspritzpunkt (16) an der Unterseite der Längsverstärkung (17) befindet.

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faîtage en forme de V (10) est moulé par injection et un point d'injection préféré (16) est disposé sur le côté inférieur du renfort transversal intermédiaire (15).

7. Élément de faîtage en fibrociment en forme de v (10) selon la revendication 2, dans lequel l'épaisseur du renfort longitudinal (17) est sensiblement la même que l'épaisseur du renfort transversal intermédiaire (15).
8. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 2, dans lequel l'élément de faîtage en forme de V (10) est moulé par injection et un point d'injection préféré (16) est monté sur le côté inférieur du renfort longitudinal (17).

Revendications

1. Élément de faîtage en fibrociment en forme de V (10) comprenant sensiblement une large portion de toiture (11) en forme de V et une portion de recouvrement (12) formant un renforcement à une extrémité de la portion de toiture (11), **caractérisé en ce que** au moins un renfort de traverse intermédiaire (15) est prévu solidairement sur le côté inférieur de deux bras déployés ou des plans de sa portion de toiture (11).
2. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 1, dans lequel un renfort longitudinal (17) est prévu solidairement le long du côté inférieur d'au moins la moitié d'une ligne de cintrage de l'élément de faîtage en forme de V (10).
3. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 1, dans lequel l'épaisseur du renfort de traverse intermédiaire (15) est sensiblement la même que l'épaisseur combinée de la portion de recouvrement (12) et la portion de toiture (11).
4. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 3, dans lequel la largeur du renfort de traverse intermédiaire (15) est agrandie.
5. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 1, dans lequel au moins une fente transversale d'écoulement des eaux (14) est ménagée solidairement sur le côté supérieur de la portion de recouvrement (12) lorsque l'élément de faîtage en forme de V (10) est utilisé.
6. Élément de faîtage en fibrociment en forme de V (10) selon la revendication 1, dans lequel l'élément de

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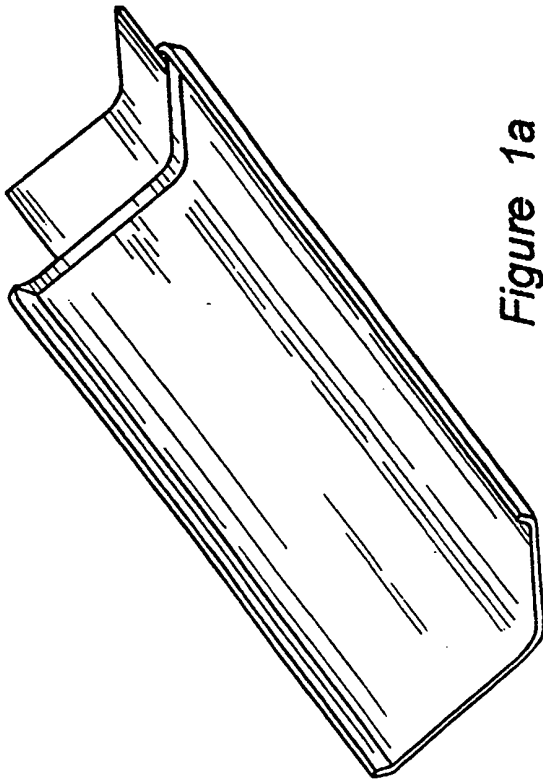


Figure 1a



Figure 1b

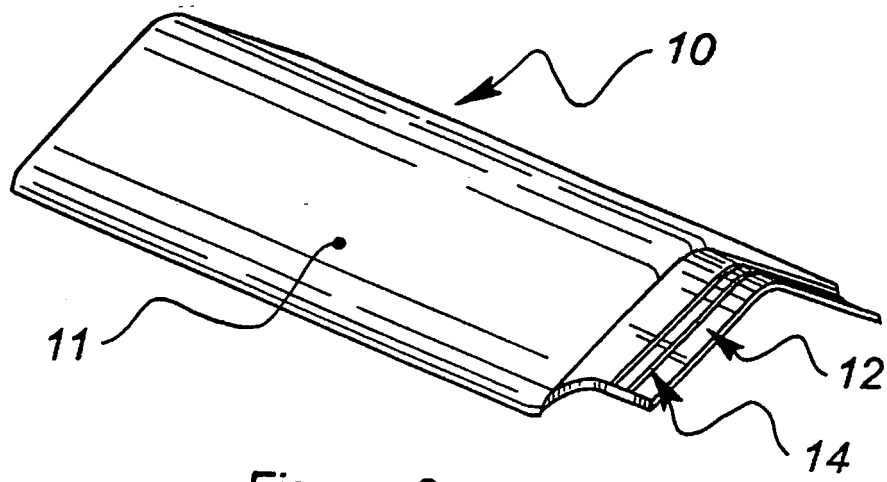


Figure 2

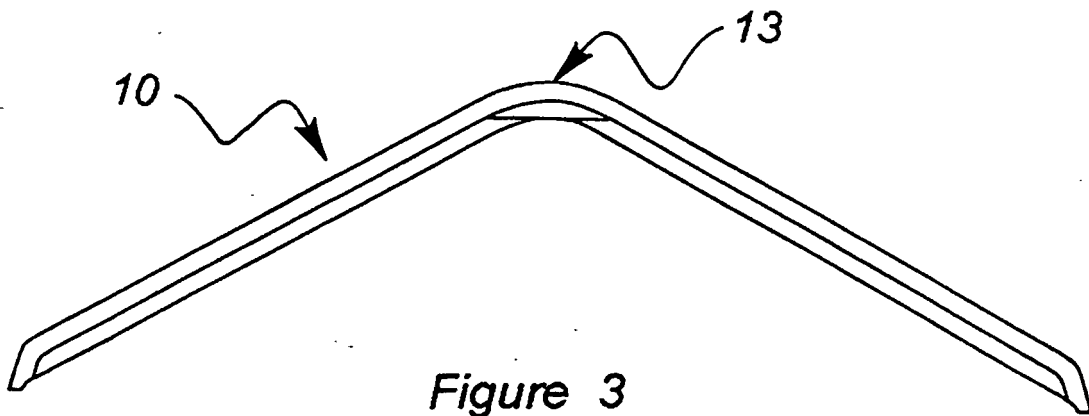


Figure 3

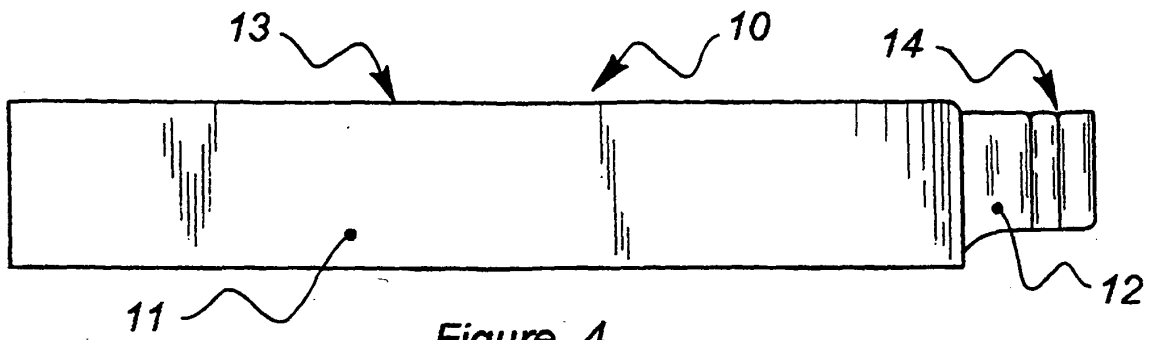


Figure 4

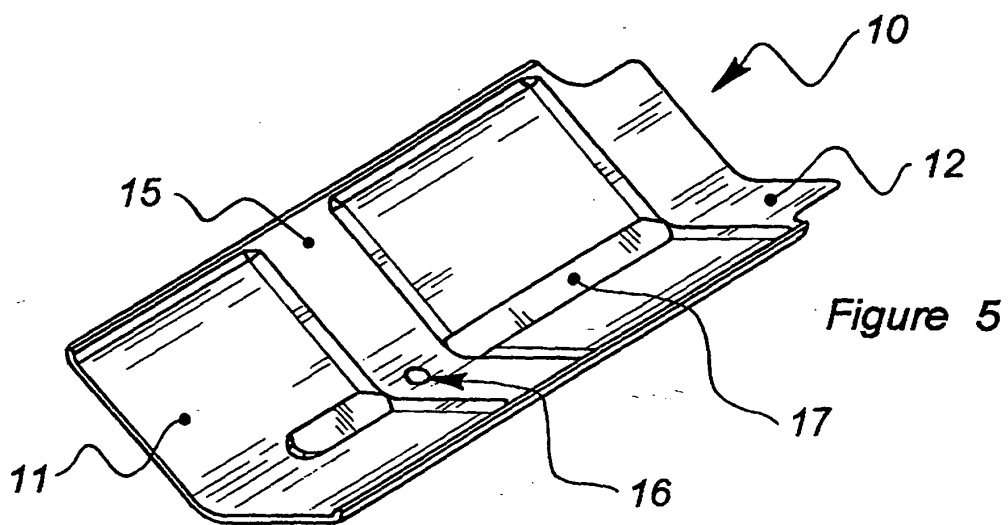


Figure 5

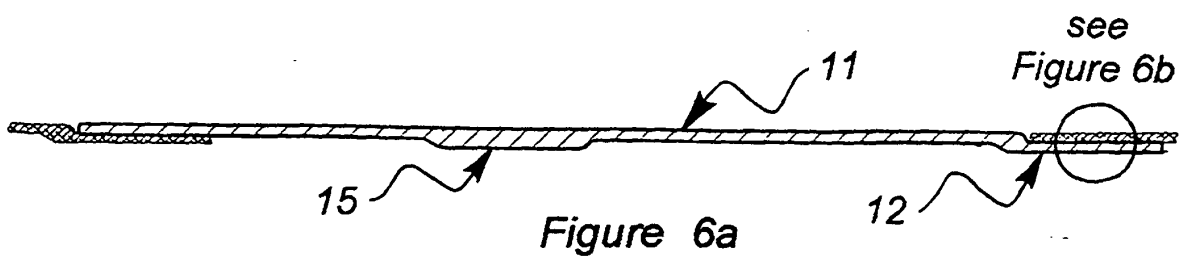


Figure 6a

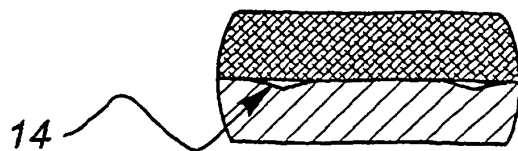


Figure 6b

REFERENCES CITED IN THE DESCRIPTION

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