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

(11) EP 0 969 158 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
05.01.2000 Bulletin 2000/01

(51) Int. Cl.[7]: **E04D 1/18**, E04D 1/20, E04D 1/06, E04D 1/08

(21) Application number: **99830355.6**

(22) Date of filing: **07.06.1999**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **02.07.1998 IT TO980581**

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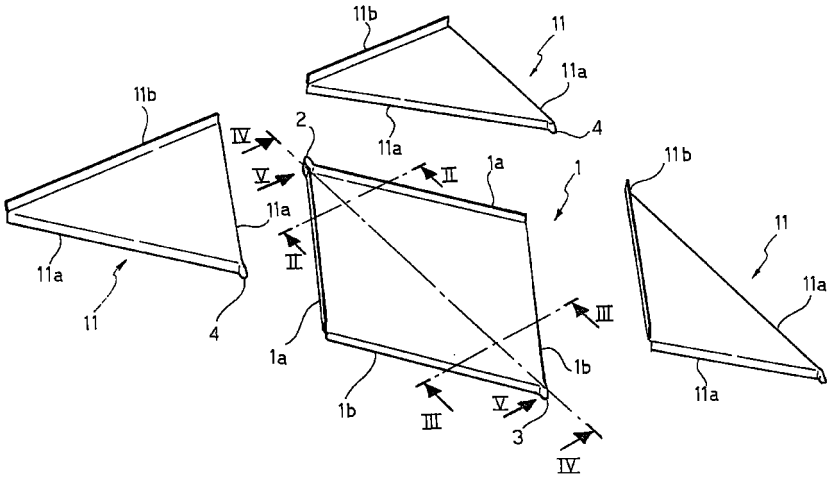
(54) Roof covering system

(57) Roof covering system comprising a number of modular elements each formed by a plate (1; 11) having at least two adjacent sides with respective edges (1a, 1b; 11a) bent in the same direction perpendicularly to the plate plane and forming, in correspondence of the corner comprised between these sides, an integral gutter (2, 3; 4). Each of the bent edges (1a, 1b; 11a) is designed to be frontally coupled with a corresponding edge bent in the opposite direction of an adjacent modular element.

FIG. 1



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Description

[0001] The present invention is generally directed to roof covering systems, and is more particularly concerned with a roofing system of the type comprising a number of modular elements designed to be secured to a support structure and to be mutually connected in a partially overlapped condition.

[0002] The object of the present invention is to provide a roof covering system of the above-referenced type which can be manufactured in a simple and economical way and also be easily and conveniently applied.

[0003] This object is achieved by virtue of the fact that the roof covering system according to the invention is primarily characterised in that each of said modular elements is formed by a plate having at least two adjacent sides with respective edges bent in the same direction perpendicularly to the plane of the plate and forming, in correspondence of the corner comprised between said two sides, an integral channel-like projection defining a gutter, each of said bent edges being adapted to be frontally coupled with a corresponding edge bent in the opposite direction of an adjacent modular element.

[0004] The plate which constitutes each modular element may have a quadrangular or triangular shape. In the first case the edges of one pair of adjacent sides are bent in one direction and the edges of the other pair of adjacent sides are bent in the opposite direction, so as to define two integral gutters mutually aligned with each other along one diagonal of the plate and facing towards opposite directions. In the second case the edge of the third side is bent in the opposite direction with respect to the edges of said two adjacent sides.

[0005] The plate is normally made of metal, for instance zinc plated sheet, but may also be made of thermoformed plastic material. Moreover the plate is coated by a protective layer comprising polymerised bitumen and/or resins and/or slate scabbling or powder and/or sand, and even simply varnished.

[0006] Accordingly the modular elements of the roof covering system according to the invention afford a practically null environmental impact, without challenging the possibility of full recycling thereof.

[0007] Additional features and advantages of invention will become apparent from the following detailed description, with reference to the accompanying drawings, purely provided by way of non limiting example, in which:

- Figure 1 is an exploded perspective view of part of a roof covering system according to the invention,
- figure 2 is a sectioned and enlarged view along line II-II of figure 1,
- figure 3 is a sectioned and enlarged view along line III-III of figure 1,
- figure 4 is a sectioned and enlarged view along line IV-IV of figure 1,
- figure 5 is a perspective view showing in a larger scale the detail indicated by arrow V in figure 1,
- figure 6 is a perspective and enlarged view showing in a greater scale the detail indicated by arrow VI in figure 1,
- figure 7 is a view same as figure 1 showing a part of the roof covering system in the assembled condition,
- figure 8 is a sectioned and enlarged view along line VIII-VIII of figure 7,
- figure 9 is a sectioned and enlarged view along line IX-IX of figure 7, and
- figure 10 is a view same as figure 5 showing a detail of the fixing arrangement of one modular element of the roof covering system according to the invention.

[0008] In general, the roof covering system according to the invention comprises a number of modular elements adapted to be secured to a support structure and to be mutually connected to one another in a partially overlapped condition so as to enhance rainwater downflow. These modular elements may have a quadrangular and preferably square design, as indicated at 1 in the drawings, or a triangular design, such as shown as 11 in the drawings.

[0009] In the first case the modular element 1 is formed by a metal plate, normally made of zinc plated sheet, having the edges 1a of two adjacent sides bent in the same direction perpendicularly to the plane of the plate, and the edges 1b of the other two adjacent sides bent also perpendicularly to the plate plane but in the opposite direction.

[0010] Bending of the edges 1a and 1b is conveniently carried out by a single drawing operation. Following bending, in correspondence of the corner comprised between the edges 1a and of the diagonally opposite corner comprised between the edges 1b two integral channel-like projections 2, 3 are defined, forming respective gutters facing towards opposite directions, i.e. the former on the side of the bent edges 1a and the latter of the side of bent edges 1b.

[0011] As far as the triangular-design modular elements 11 are concerned, the edges 11a of two adjacent sides are bent in the same direction perpendicularly to the plane of the plate, while the third side 11b is bent, also perpendicularly to the plane of the plate, in the opposite direction. Even in this case bending is conveniently performed by a single drawing or bending operation, upon which in correspondence of the corner comprised between the edges 11a a channel-like projection 4 is integrally formed, which is identical to the channel-like projections 2, 3 of the quadrangular modular elements 1 and is facing towards the same direction of the bent edges 11a so as to provide a gutter.

[0012] Figure 7 shows the assembled arrangement of a part of the roof covering system according to the invention over a support structure, normally consisting of wood beams T (figure 8) so as to provide a roof covering. As also shown in figure 8, each modular element

1 or 11 is secured, such as clarified in the following, to the support structure T and coupled in a partially overlapped condition with the adjacent modular elements 1 or 11 so that each of the bent edges 1a, 1b or 11a, 11b is frontally connected to a corresponding edge 1b, 1a or 11b, 11a, respectively, bent in the opposite direction of an adjacent modular element 1 or 11 respectively. In the coupled condition each gutter 2, 3 or respectively 4 is superimposed in a reversed condition to a corresponding gutter of an adjacent modular element 1 or 11, such as depicted in detail in figure 3.

[0013] Figure 10 shows a preferred solution for securing each modular element 1 or 11 to the support structure T. This solution includes a substantially L-shaped bracket 5 having a lower arm 6 provided with a bore 7 for fixing thereof to the support structure T for instance by means of a screw, and an upper arm 8 whose free end 9 is bent so as to define a resilient clamp intended to be force-fitted onto the upwardly bent edge 1a or 11b of the modular element 1 or 11 respectively.

[0014] It will be apparent from the above that the invention provides a roof covering system which is particularly simple and economical and whose laying can be easily carried out even by unqualified personnel.

[0015] Moreover the modular elements of the roofing system according to the invention are entirely recyclable, and their environmental impact is null. In this connection, and even to improve ornamental appearance thereof, the plates of the modular elements of the system according to the invention can be conveniently covered by a protective layer, consisting of a waterproofing covering of polymerised bitumen and/or resins in turn covered by slate scabbling or powder or sand.

[0016] The same advantageous aestethical effect, joined to the above referenced-structural and functional advantages, can be achieved by making the plate of the modular elements of thermoformed plastic material instead of drawn metal sheet.

[0017] Naturally the details of construction and the embodiments may widely vary with respect to what has been disclosed and illustrated, without departing from the scope of the present invention, such as defined in the appended claims.

Claims

1. Roof covering system comprising a number of modular elements designed to be secured to a support structure (T) and to be mutually connected in a partially overlapped condition, characterised in that each of said modular elements is formed by a plate (1; 11) having at least two adjacent sides with respective edges (1a, 1b; 11a) bent in the same direction perpendicularly to the plane of the plate (1; 11) and forming, in correspondence with the corner comprised between said two edges, an integral channel-like projection (2, 3; 4) defining a gutter, each of said bent edges being adapted to be frontally coupled with a corresponding edge bent in the opposite direction of an adjacent modular element.

2. System according to claim 1, characterised in that said plate (1) has a quadrangular shape, the edges (1a) of one pair of adjacent sides thereof being bent in one direction and the edges (1b) of the other pair of the adjacent sides being bent in the opposite direction, so as to define two integral gutters (2, 3) mutually aligned along a diagonal of the plate (1) and facing towards opposite directions.

3. System according to claim 1, characterised in that said plate (11) has a triangular shape with the edge (11) of the third side bent on the opposite direction with respect to said edges (11a) of said adjacent sides.

4. System according to any of the preceding claims, characterised in that the plate (1;11) is made of metal, normally of zinc plated sheet.

5. System according to claims 1 through 4, characterised in that the plate (1; 11) is made of thermoformed plastic material

6. System according to claim 4 or claim 5, characterised in that the plate (1; 11) is coated by a protective layer.

7. System according to claim 6, characterised in that said protective layer comprises polymerised bitumen and/or resins and/or slate scabbling or sand.

8. System according to any of the preceding claims, characterised in that each modular element includes, for securing thereof to the support structure (T) of the roof, a substantially L-shaped racket (5) having one arm (6) designed to be fixed to the support structure (7) and the other arm (8) formed as a resilient clamp (9) adapted to beforce-fitted onto the bent edge (1a, 1b; 11a, 11b) of one of said sides of the plate (1; 11).

9. System according to claim 2 or claim 3, characterised in that each modular element is manufactured by drawing or bending.

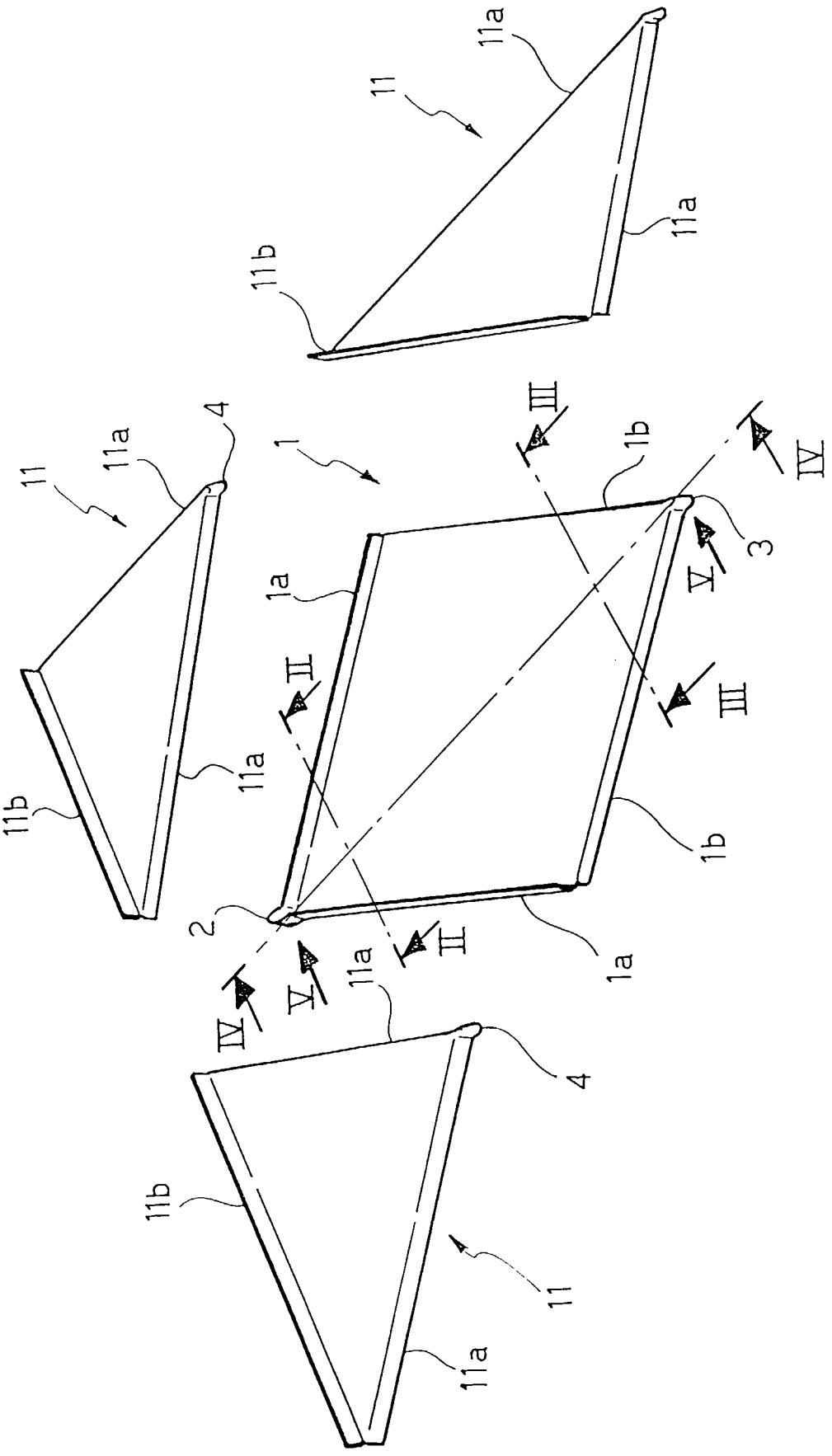

FIG.1

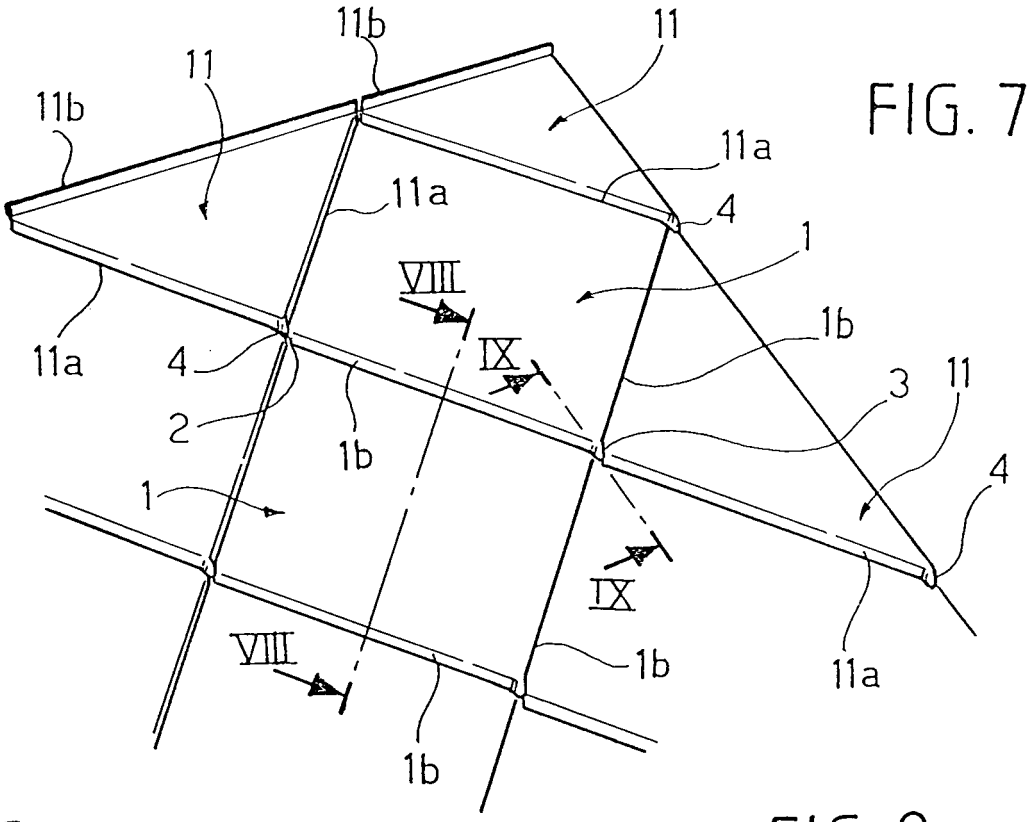

FIG. 7

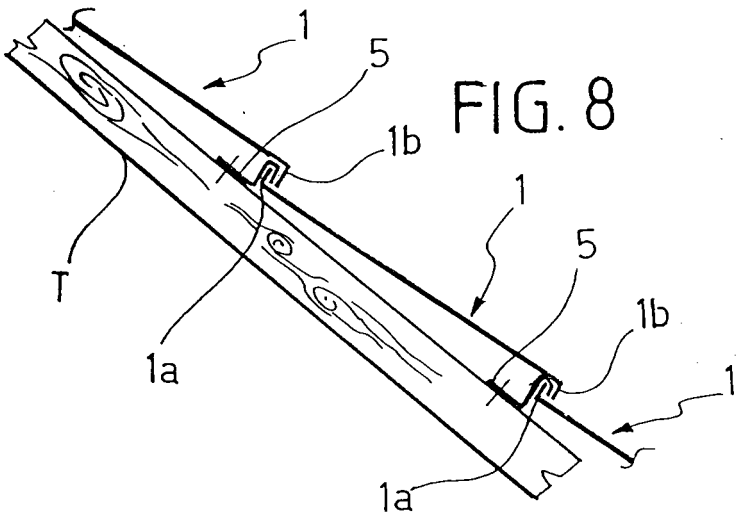

FIG. 8

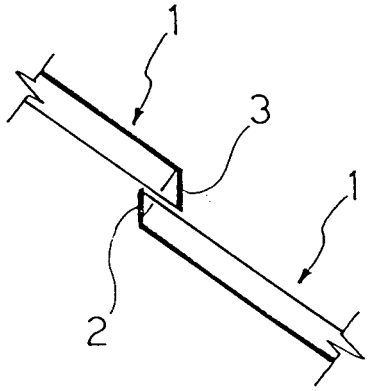

FIG. 9

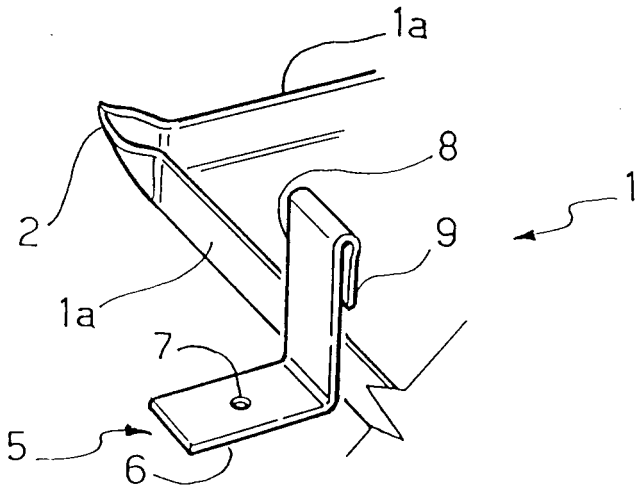

FIG. 10

FIG. 2

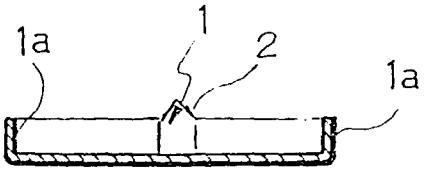

FIG. 3

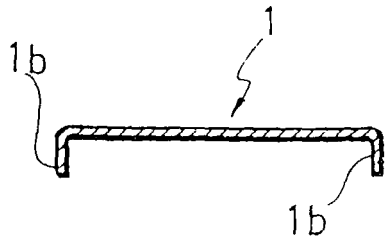

FIG. 4

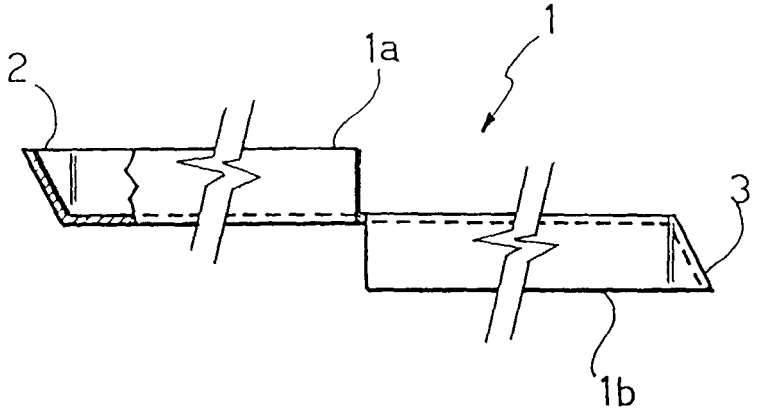

FIG. 5

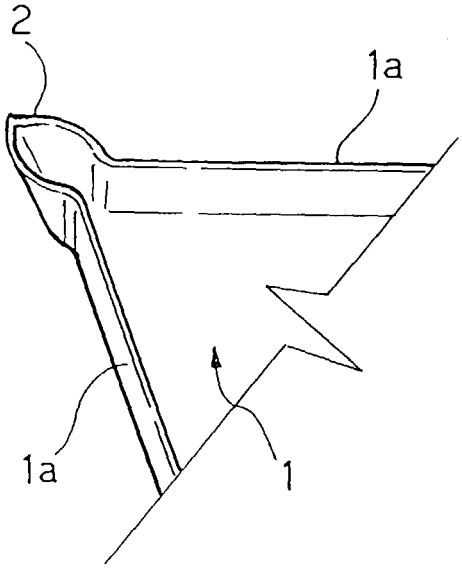

FIG. 6