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**AT BE CH DE DK ES FR GB GR IT LI LU MC
NL PT SE**(71) Applicant: **ISOBOUW B.V.**
Kanaalstraat 107
NL-5711 EG Someren(NL)(72) Inventor: **Meuwissen, Edmar Gerard Jozef**
Morgenroodstraat 9
NL-5641 HC Eindhoven(NL)
Inventor: **Hompus, Ruud**
Steenakker 14
NL-6651 JE Druten(NL)(74) Representative: **Vollebregt, Cornelis Jacobus,**
Ir.
P.O. Box 645
NL-5600 AP Eindhoven(NL)(54) **A roofing sheet.**

(57) The invention relates to a roofing sheet which is built up of a rigid sheet (1) of insulating material and a covering layer (3) bonded to said sheet. On both sides of the sheet cuts (2) are provided in the sheet, said cuts extending from the surface along part of the height of the sheet. The cuts provided from the one side of the sheet are thereby staggered with respect to the cuts provided from the other side of the sheet.

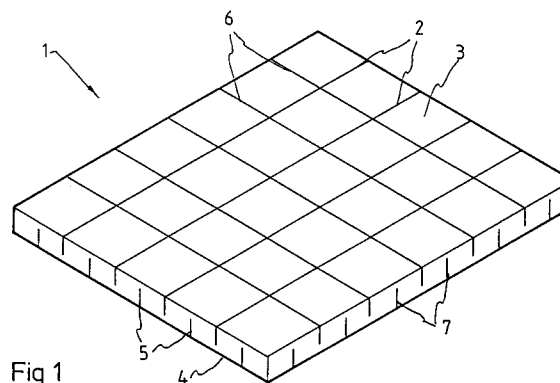


Fig 1

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The invention relates to a roofing sheet built up of a rigid sheet of insulating material and a covering layer bonded to said sheet, whereby on one side of the sheet cuts are provided in the sheet, said cuts extending from the surface along part of the height of the sheet.

Such sheets, whereby the insulating material is usually made of polystyrene foam, are known per se, e.g. from DE-A-2746121. The purpose of the cuts is to avoid undesirable shrinkage in the sheet as a result of the inherent properties of the material and/or as a result of outside influences. Such shrinkage has an adverse effect on the construction of the roof-covering, which is built up of said roofing sheets. The effect of providing cuts from one side of the sheet along part of the height of the sheet has appeared to be insufficient in many cases. Therefore DE-A-2746121 has proposed an alternative of providing said cuts along the entire height of the sheet. With such an embodiment it is necessary to provide a covering layer on both sides of the sheet, which by itself is already a drawback in many cases. A further disadvantage is that the cohesion of the sheet is lost, which makes handling more difficult. In addition to that the slots extending along the entire height of the sheet form so-called thermal bridges.

The object of the invention is to obtain a roofing sheet of the above kind, wherein the above drawbacks can be overcome.

According to the invention this can be achieved in that on the other side of the sheet cuts are provided as well, said cuts extending from the respective surface along part of the height of the sheet, whereby the cuts provided from the one side of the sheet are staggered with respect to the cuts provided from the other side of the sheet.

Surprisingly it has appeared that by carrying out this simple measure the adverse effects of the above shrinkage are avoided, whilst a solid cohesion of the roofing sheet is still ensured and thermal leakage through the roofing sheet is avoided.

It is noted that from Patent Abstracts of Japan, Vol. 014, No. 509 (C-0776), 7 November 1990, a polystyrene sheet is known, whereby shallow, comparatively wide grooves are provided in both sides of the sheet. The grooves on either side are thereby located directly opposite each other.

The invention will be further explained hereafter with reference to the accompanying Figures.

Figure 1 is a diagrammatic perspective view of a rigid sheet comprised of an insulating material, for use with a roofing sheet according to the invention.

Figure 2 is a diagrammatic, perspective view of a roofing sheet according to the invention, which is built up of two rigid sheets of insulating material, which are interconnected by a covering layer bon-

ded to said sheets.

The parallelepiped sheet 1 of insulating material, such as polystyrene foam, shown in Figure 1 is provided with a plurality of cuts 2 extending parallel to each other and to the longitudinal direction of the sheet, said cuts extending downwards from the upper side 3 of the sheet 1, when seen in Figure 1, perpendicularly to said upper side 3, along a distance $\pm 2/3$ the thickness of the sheet. With a sheet having a thickness of ± 8 cm the height of a cut or slot 2 is e.g. ± 5 cm.

In a similar manner cuts or slots 5 extending parallel to each other and to the cuts or slots 2 are provided in the sheet from the bottom side 4 of the sheet, when seen in Figure 1, said cuts or slots 5 likewise extending along a distance $\pm 2/3$ the thickness of the sheet.

As will be apparent from Figure 1 said cuts 2 extending from the upper side 3 are staggered transversely to their longitudinal direction with respect to the cuts 5 extending from the bottom side 4. In the illustrated embodiment the cuts or slots 2 are located centrally between the cuts or slots 5, when seen in plan view.

In the embodiment shown in Figure 1 cuts or slots 6 extending at least substantially perpendicularly to the cuts or slots 2 are provided as well, said cuts or slots 6 extending from the upper side 3 of the sheet 1 along at least substantially the same distance as the slots 2. In a similar manner cuts or slots 7 extending upwardly from the bottom side 4 of the sheet are provided, said cuts or slots 7 extending parallel to and spaced from the cuts 6.

Preferably the parallel cuts or slots provided in the sheet 1 from the upper side 3 or from the bottom side 4 are spaced ± 20 cm apart.

Dependent on the circumstances it may be sufficient to provide only longitudinal cuts or only cross cuts.

As is indicated in Figure 2 a conventional covering layer 8 is provided on the upper side of the sheet comprised of an insulating material, so as to produce a roofing sheet, said covering layer being bonded to said sheet of insulating material. In the embodiment illustrated in Figure 2 a pair of sheets 9 and 10 corresponding with the above-described sheet 1 is bonded to the covering layer 8, whereby in the position shown in Figure 2 said sheets 9 and 10, which are interconnected by means of the covering layer 8, lie one on top of the other. This position of the sheets 9 and 10, one lying on top of the other, is suitable for transport. When being placed on a roof the sheet 10 will be pivoted with respect to the sheet 9 in the direction according to the arrow A, so as to be placed in line with the sheet 9 on the respective roof.

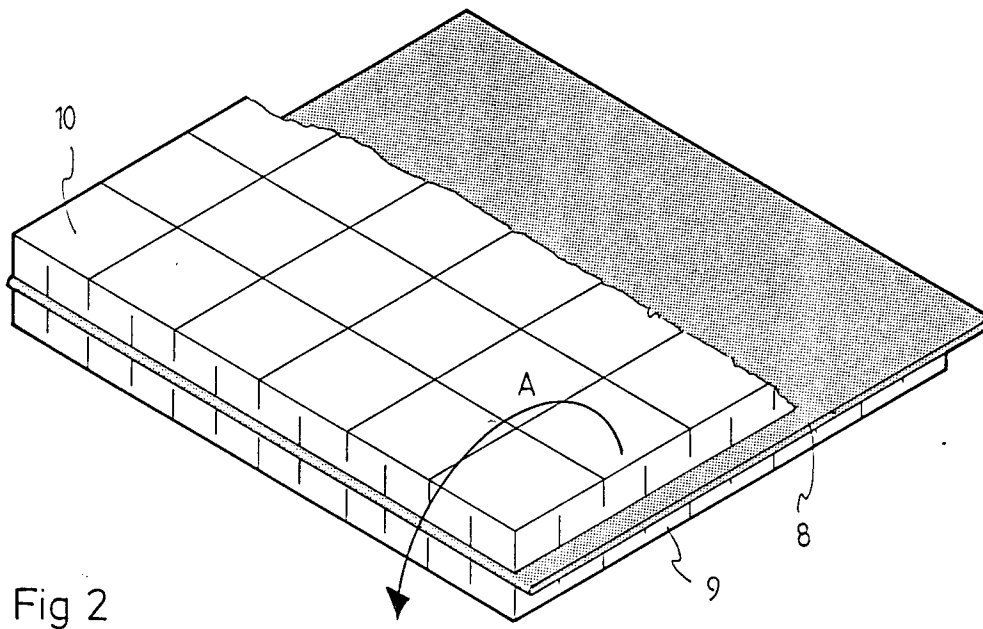
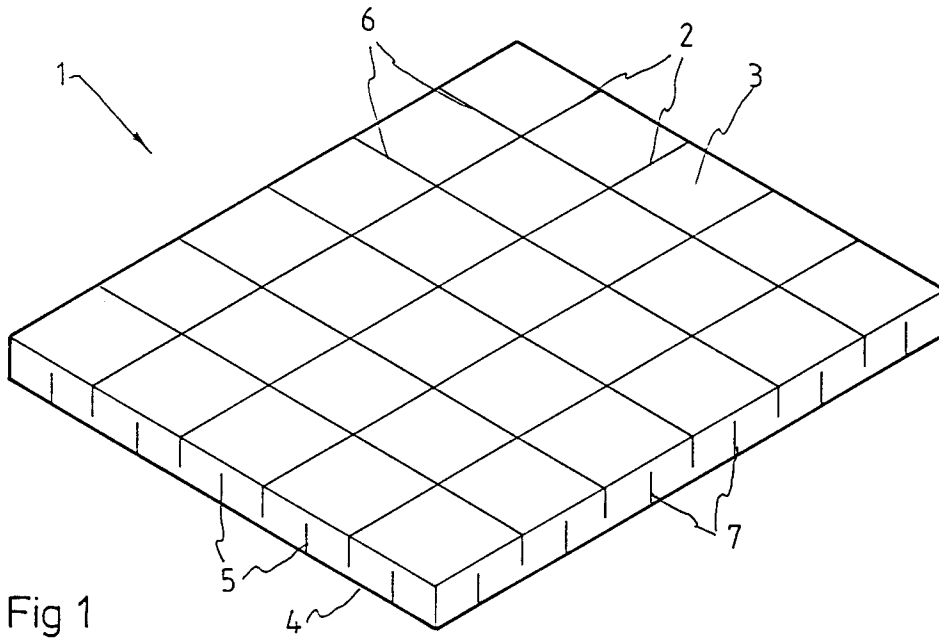
As is furthermore indicated in Figure 2, the covering layer projects from the roofing sheet 9, 10

on two adjoining sides. When the roofing sheets 9, 10 are placed one beside the other, said projecting parts will come to lie on the covering layers of adjacent roofing sheets. Preferably the projecting parts which come into contact with the covering layers of adjacent roofing sheets are self-adhesive thereby, so that a good sealing between the covering layers of adjacent roofing sheets is formed immediately upon said roofing sheets being placed, so that the roof becomes watertight immediately upon the roofing sheets being placed. Afterwards further roofing layers may be provided on the covering layers.

For transport of the roofing sheets the self-adhesive, projecting parts are generally covered with easily removable protective strips.

Claims

1. A roofing sheet built up of a rigid sheet of insulating material and a covering layer bonded to said sheet, whereby on one side of the sheet cuts are provided in the sheet, said cuts extending from the surface along part of the height of the sheet, characterized in that on the other side of the sheet cuts are provided as well, said cuts extending from the respective surface along part of the height of the sheet, whereby the cuts provided from the one side of the sheet are staggered with respect to the cuts provided from the other side of the sheet.
2. A roofing sheet according to claim 1, characterized in that a cut extends along $\pm 2/3$ the height of the sheet of insulating material.
3. A roofing sheet according to claim 1 or 2, characterized in that the cuts provided from the one side of the sheet are located approximately centrally between the cuts provided from the other side of the sheet.
4. A roofing sheet according to any one of the preceding claims, characterized in that said cuts extend at least substantially parallel to one side of the roofing sheet.
5. A roofing sheet according to any one of the preceding claims, characterized in that intersecting cuts are provided in the sheet of insulating material.
6. A roofing sheet according to any one of the preceding claims, characterized in that the mutual distance of the cuts provided from one side of the sheet is ± 20 cm.





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EUROPEAN SEARCH REPORT

Application Number

EP 92 20 1485

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D,Y	DE-A-2 746 121 (TAKSERVICE A/S) * the whole document *	1, 3, 4, 5	E04D3/35

D,Y	PATENT ABSTRACTS OF JAPAN vol. 014, no. 509 (C-0776)7 November 1990 (NAGOYA YUKA KK) 22 August 1990 & JP-A-2 211 268 * abstract *	1, 3, 4, 5	

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E04D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 08 SEPTEMBER 1992	Examiner VAN GESTEL H.M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			