

(12) **UK Patent Application** (19) **GB** (11) **2 194 265** (13) **A**
(43) Application published 2 Mar 1988

(21) Application No **8719407**

(22) Date of filing **17 Aug 1987**

(30) Priority data
(31) **8620455** (32) **22 Aug 1986** (33) **GB**

(71) Applicants
Seamus Nash,
5 Violet Street, Waterside, Londonderry BT47 2AR.

Sarah Agnes Brothers,
21 Dungiven Road, Waterside, Londonderry BT47 1BS

(72) Inventors
Seamus Nash
John Brothers

(74) Agent and/or Address for Service
Fitzpatricks,
4 West Regent Street, Glasgow G2 1RS

(51) INT CL⁴
E04D 3/35

(52) Domestic classification (Edition J):
E1D 2023 2141 401 402 421 F193 LEKG
U1S 1700 1708 1958 E1D

(56) Documents cited
GB A 2176218 **GB A 2078275** **US 4443993**
GB A 2137251 **GB 1292714** **US 4034528**

(58) Field of search
E1D
E1B
Selected US specifications from IPC sub-class E04D

(54) **Insulated roof cladding panels**

(57) Cladding panels for roofs or walls includes a cladding member 10 comprising an outer sheet 12, an under layer of thermal insulation 14 and a fixing plate 20 whereby the member 10 may be affixed to a supporting structure such as roof trusses 18. In use the member 10 is positioned transversely with respect to the supporting structure and its lowermost edge 16 overlaps the upper edge of the next lowest member. The profile of the outer sheet 12 may be shaped to simulate conventional tiles.

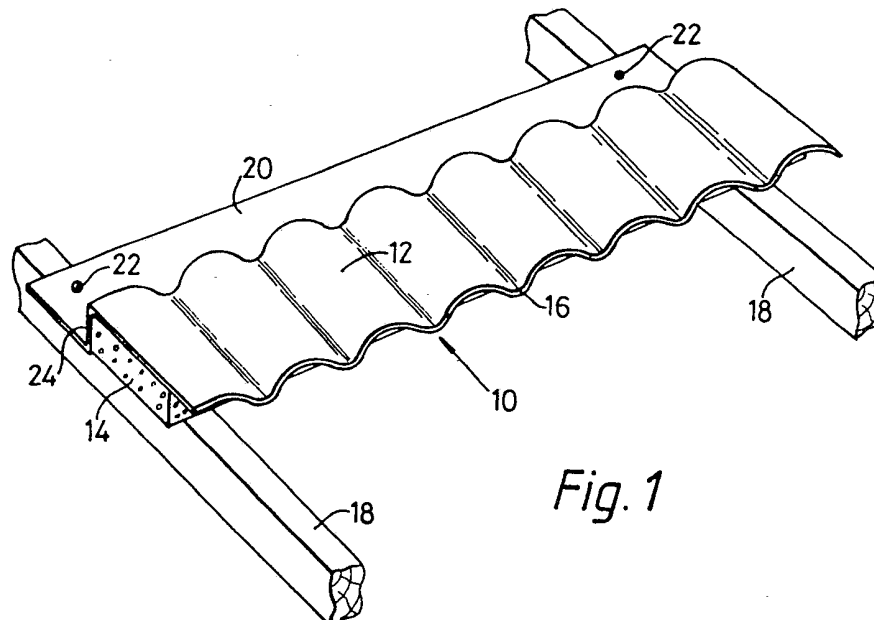
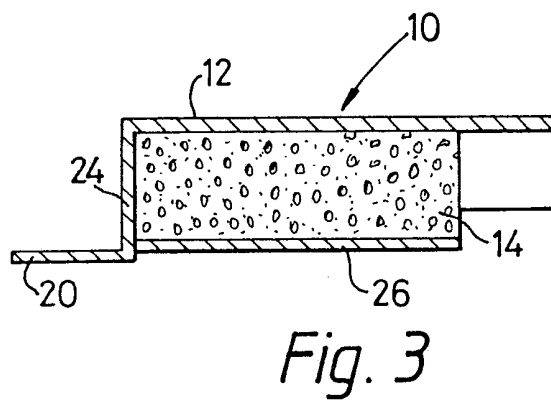
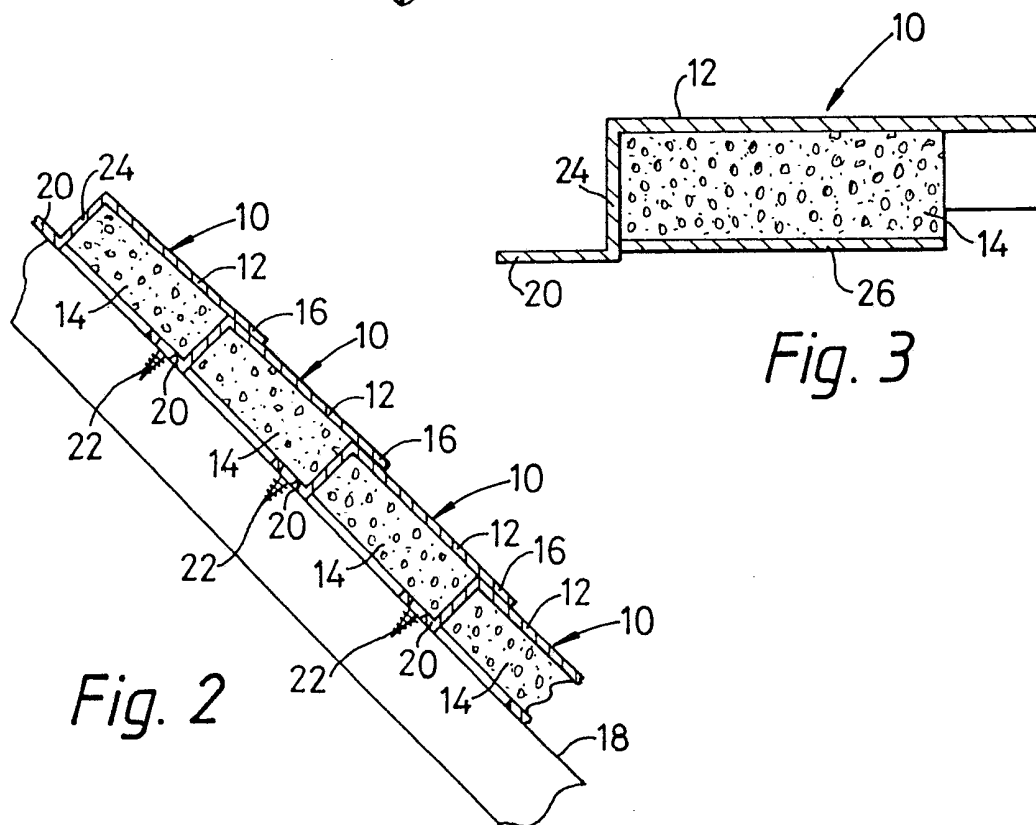
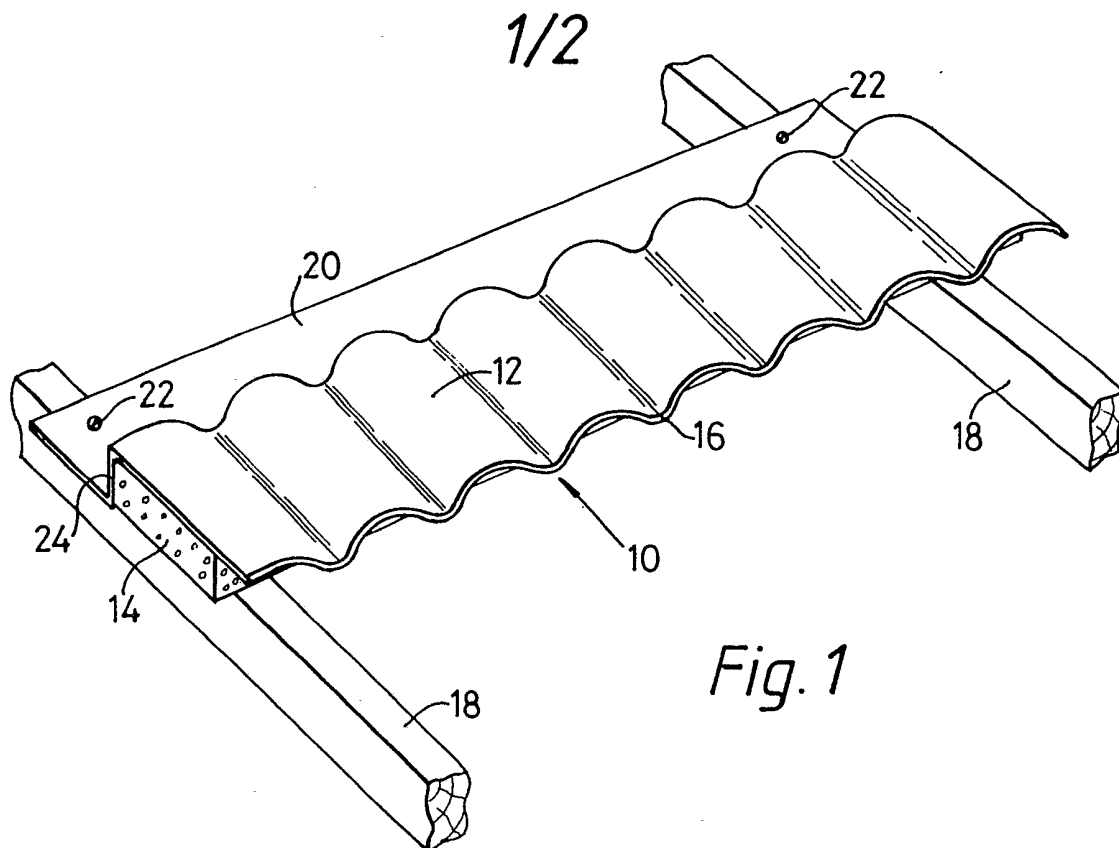
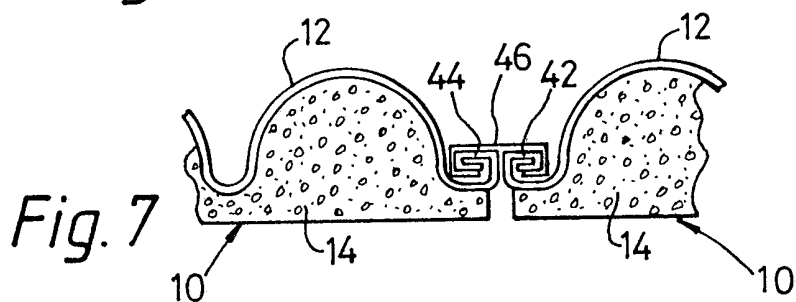
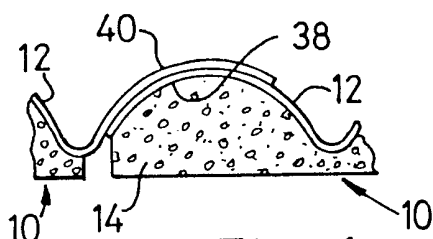
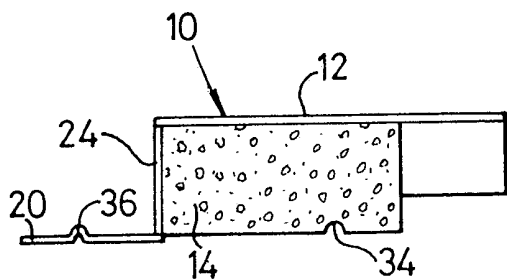
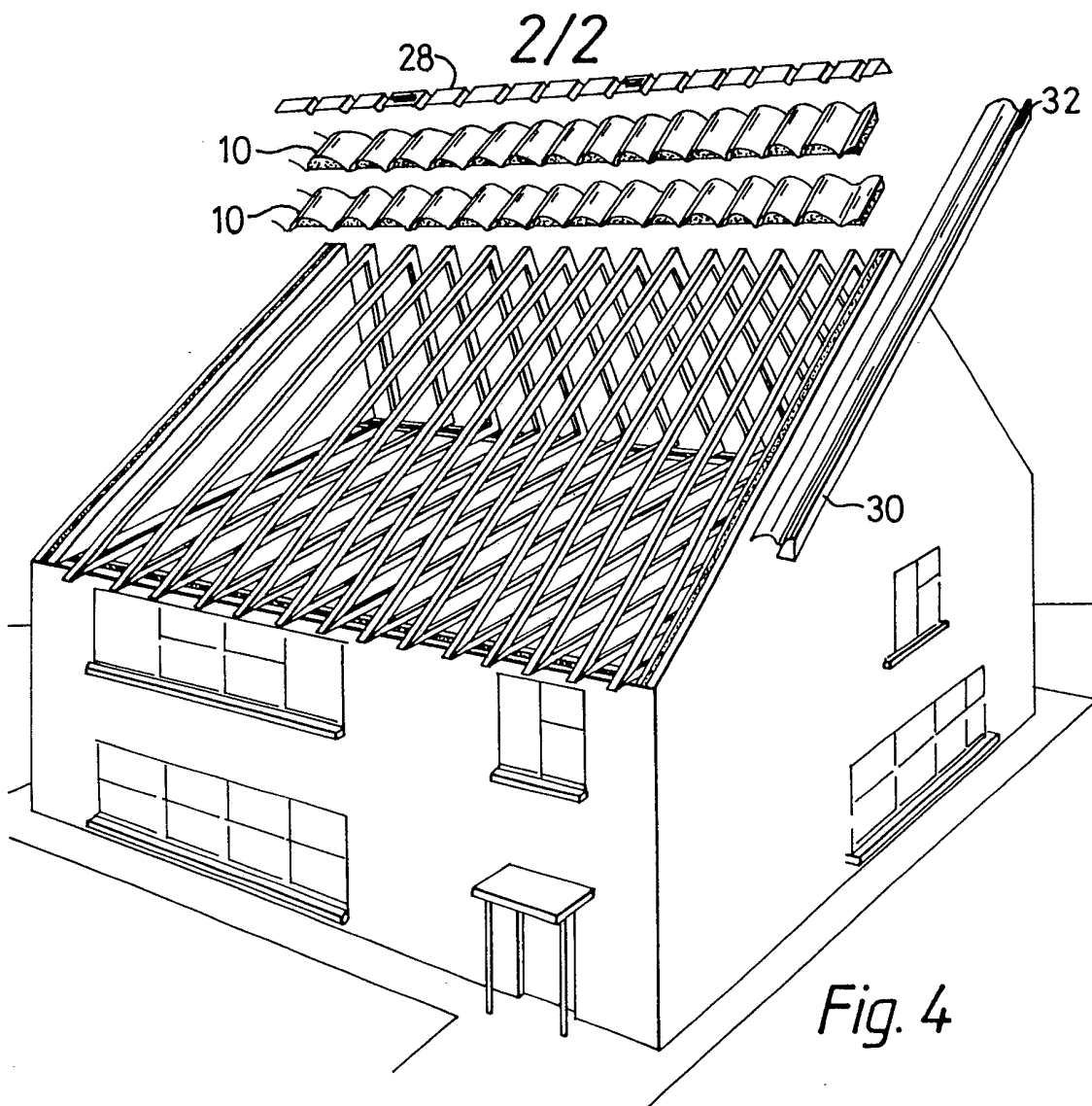


Fig. 1





SPECIFICATION

Cladding system

- 5 The present invention relates to an improved cladding system for cladding roofs or walls.

- There are a number of disadvantages associated with conventional slate or tile roofing systems including high installation and maintenance costs, requiring the use of skilled labour, poor thermal insulation properties, necessitating separate insulation of loft spaces, hot water tanks and pipes etc., and the need for protection against condensation by the use of lath and felt. Analogous difficulties are encountered in the cladding of walls.

It is an object of the present invention to obviate or mitigate the aforesaid disadvantages.

- 20 Accordingly, the present invention provides a cladding system including a plurality of elongate cladding members adapted to be attached to a supporting structure transversely and in a parallel series, each of said members comprising an outer sheet of weatherproof material having a layer of thermal insulating material affixed to the inner surface thereof, and wherein the lower edge of the sheet extends beyond said insulating material such that it may overlap the upper edge of its lowermost adjacent member.

- Preferably also, said members are each provided with an elongate fixing plate spaced from said outer sheet and extending along the upper edge thereof adjacent the bottom surface of the insulating layer, whereby the member may be attached to the supporting structure.

- Preferably also, said outer sheet is corrugated in longitudinal section.

Preferably also, the cladding members are further provided with an inner skin of sheet material covering the underside of the insulating material.

- 45 Where the system is used for cladding a roof, the cladding members are attached directly to the trusses of the roof by nailing or screwing through the fixing plate. When cladding a wall the members may be attached in a similar manner to the uprights of the wall.

- 50 The system according to the invention may further include a variety of modular units adapted to co-operate with the elongate cladding members to seal ridges, valleys, gables corners and the like.

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:—

- 60 *Figure 1* is a perspective view of a cladding member in accordance with the invention;

Figure 2 is a sectional view of a plurality of cladding members as shown in Fig. 1 in position on a roof truss;

- 65 *Figure 3* is an end view of a modified cladding member;

ing member;

Figure 4 is perspective view of a building illustrating the use of the cladding system in roofing;

- 70 *Figure 5* is an end view of a slightly modified cladding member;

Figure 6 is a fragmenting front view of two cladding members showing first method of arranging horizontally adjacent cladding members; and

- 75 *Figure 7* is a fragmentary front view of two cladding members showing an alternative method of arranging horizontally adjacent cladding members.

- 80 Referring now to the drawings, the cladding system of the present invention includes a plurality of elongate cladding members 10 such as are shown in Figs. 1 and 2. Each of the cladding members 10 comprises an elongate sheet 12 of weatherproof material having a layer of thermal insulating material 14 affixed to the inner surface thereof and wherein the lowermost edge 16 of the sheet 12 projects beyond the layer of insulating material 14.

- 85 The members of 10 each further include an elongate fixing plate 20, spaced from and substantially parallel to the sheet, 12, extending along the length of the member 10 and projecting outwardly from the bottom edge of the insulating layer 14.

- The members 10 are attached to a supporting structure comprising a series of parallel support members 18 by means of screws 22 or nails extending through the fixing plate 20, which may be provided with perforations for this purpose. In the case of a roof, the support members 18 would be the trusses of the roof, and in the case of a wall would be upright members. The members are attached to the supporting structure transversely to the support members 18 starting at the bottom thereof (ie at the eaves of a roof or the bottom of a wall) and working upwardly therefrom, such that the edge 16 of each member overlaps the lowermost adjacent member 10. The overlap is preferably at least four inches (10cm). As is best seen in Fig. 2 the insulating layer 14 of each member 10 also overlaps the fixing plate 18 of the preceding member 10 and abuts the upper edge thereof, thus acting as a fixing guide. The members 10 are cut to a length prior to fixing so as to span the entire width of the structure, thereby eliminating vertical joints and so avoiding sealing problems.

- The weatherproof sheeting 12 is preferably corrugated and its sectional profile may be varied widely so as to simulate, for example, the visual appearance of any of a number of styles of conventional roofing slates and tiles. The manner in which the fixing plate 20 is connected to the sheeting 12 may vary according to the particular profile in use. In the example illustrated the plate 20 can be at-

tached to the peaks of the corrugations by spring steel members 24 spaced along the length of the member 10.

The cladding system of the present invention is quickly and easily installed, provides improved thermal installation, and, in a roof, obviates the need for lathing and felting. Maintenance costs are also reduced. The weatherproof sheeting 12 is preferably of aluminium which may be coated with polypropylene or the like for colouring and additional protection. The insulating material 14 is preferably expanded polystyrene.

As shown in Fig. 3, the members 10 may also be provided with an inner skin of planar sheet material 26 covering the underside of the insulating material 14. This is particularly desirable in roofing applications. The inner skin 26 may be an extension of the fixing plate 20 or may be a separate sheet attached thereto.

The system may further include modular units for sealing ridges, gables, eaves, valleys, corners etc. The precise configuration of such units will vary in accordance with the particular sectional profile of the basic cladding members 10. Fig. 4 shows two such units: a ridge closure piece 28 and a verge closure piece 30. The ridge piece 28 is shaped to complement the longitudinal sectional profile of the cladding members 10 whilst the verge closure piece is shaped in section to engage the ends of the cladding members 10. It may also include a gutter portion 32.

Fig. 5 shows a slight modification of the cladding member 10 wherein a transverse groove 34 is formed in the underside of the insulating material 14 (and/or the inner skin if used) which, in use, engages a transverse projection 36 formed in the fixing plate 20 of the lowermost adjacent member.

In some cases, as with, for example, terraced houses, it will not be practical to span the full width of the roof with a single cladding member. In such cases it will be necessary to effect a seal between horizontally adjacent cladding members 10. This may be achieved simply by overlapping the ends 38, 40 of the adjacent members 10 as shown in Fig. 6. Alternatively, as shown in Fig. 7, the ends 42, 44 of the members may be folded back on themselves such that a C-section elongate sealing member 46 may engage the folded ends to seal the join therebetween.

CLAIMS

1. A cladding system including a plurality of elongate cladding members adapted to be attached to a supporting structure transversely and in parallel series, each of said members comprising an outer sheet of weatherproof material having a layer of thermal insulating material affixed to the inner surface thereof, and wherein the lowermost edge of the sheet extends beyond said insulating material such

that it may overlap the upper edge of its lowermost adjacent member.

2. A system as claimed in claim 1 wherein each of said cladding members is provided with an elongate fixing plate spaced from said outer sheet and extending along the upper edge thereof adjacent the bottom surface of the insulating layer, whereby the member may be attached to the supporting structure.

3. A system as claimed in claim 1 or claim 2 wherein said outer sheet is corrugated in longitudinal section.

4. A system is claimed in any of claims 1 to 3 wherein said cladding members are further provided with an inner skin of sheet material covering the underside of the insulating material.

5. A system as claimed in any preceding claim further including modular units adapted to co-operate with said cladding members to seal ridges, valleys, gables, corners and the like.

6. A system as claimed in claim 2 wherein said fixing plate is connected to said outer sheet by means of a plurality of fixing members spaced along the length thereof.

7. A system as claimed in any preceding claim wherein the longitudinal ends of the cladding members are folded back so as to be co-operable with a substantially C-section elongate sealing member whereby horizontally adjacent cladding members may be linked together.

8. A system as claimed in any preceding claim wherein said outer sheet is of aluminium.

9. A system is claimed in any preceding claim wherein said insulating material is expanded polystyrene.

10. A method of cladding a structure comprising a series of parallel, vertically extending support members using a cladding system as claimed in claims 1 to 9 comprising attaching a first cladding member to said structure adjacent the bottom thereof and transversely with respect to said support members and subsequently attaching further members in parallel series such that the lowermost edges thereof overlap the upper edges of the lowermost adjacent cladding members.

11. A method as claimed in claim 10 wherein the insulating layer overlaps the fixing plate and abuts the upper edge of the lowermost adjacent member.

12. A method as claimed in claim 10 or claim 11 wherein the cladding members are attached to the supporting structure by nailing or screwing through the fixing plate thereof.

13. A method as claimed in any of claims 10 to 12 wherein the cladding members span the entire width of the supporting structure.

14. A method as claimed in any of claims 10 to 12 wherein the longitudinal ends of horizontally adjacent cladding members are overlapped.

15. A method as claimed in any of claims 10 to 12 wherein the longitudinal ends of horizontally adjacent cladding members are linked by C-section elongate member engaging 5 folded portions at said longitudinal ends of said cladding members.

16. A cladding system and method substantially as hereinbefore described with reference to the accompanying drawings.

Published 1988 at The Patent Office, State House, 66/71 High Holborn, London WC1R 4TP. Further copies may be obtained from The Patent Office, Sales Branch, St Mary Cray, Orpington, Kent BR5 3RD. Printed by Burgess & Son (Abingdon) Ltd. Con. 1/87.