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54 **A panel of improved type for industrialised building.**

57 A panel of improved type for industrialised building is described.

The main characteristic of the present invention lies in the fact that the panel comprises an inner layer of thermal insulating material (3), an outer cladding (2) of a composition based on glass fibre, and at least one pocket (4) into which, in use, is introduced bulk material (8) having a high thermal inertia.

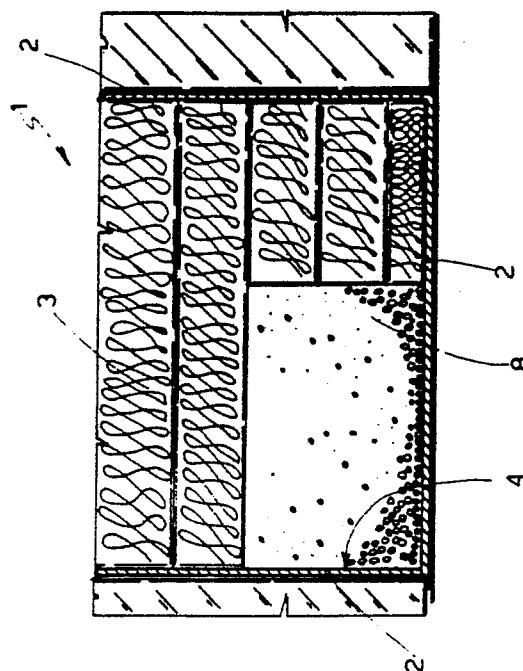


Fig.4

"A PANEL OF IMPROVED TYPE FOR INDUSTRIALISED BUILDING"

The present invention relates to a panel of improved type for industrialised building.

As is known, panels which are utilised in industrialised building have only the purpose of delimiting the spaces within the building and for this are not supporting but rather are supported by columns of the building itself. Currently it is preferred to utilise prefabricated panels which allow an energy saving and which therefore must have principally two characteristics. The first characteristic is that of presenting a high thermal insulation and for this layers of thermal insulating material such as, for example, expanded polystyrene, are incorporated in the panel. The second characteristic is that of presenting a high thermal inertia and for this these panels are also formed of cementitious concrete.

The above-described panels have several serious disadvantages.

In particular they are of high weight, which makes it more difficult to transport them and to place them in position. Moreover, it is not possible, once they have been positioned, to vary the thermal inertia of such panels.

The object of the present invention is that of providing a panel of improved type for industrial building, which will be free from the stated disadvantages and which, that is, will be of low weight, easy to transport and to place in position, and the thermal inertia of which can be varied in a simple manner to adapt it to the climate of the place where it is installed.

According to the present invention there is provided a panel of improved type for industrial building, characterised by the fact that it comprises an inner layer of thermal insulating material, an outer cladding of a composition based on glass fibre, and at least one pocket containing a quantity of bulk material having a high thermal inertia such as, for example, sand, cementitious concrete, gravel, working waste from the ceramic industry or furnace waste, etc., or mixtures of these.

For a better understanding of the present invention a preferred embodiment is now described by way of non-limitative example, with reference to the attached drawings, in which:

Figures 1 and 2 are respectively front and rear perspective views of a panel formed according to the principles of the present invention; and

Figures 3 and 4 are sections, on an enlarged scale, of a portion of the panel of Figure 1.

As illustrated in the attached drawings a panel utilised in the building industry for delimiting spaces of a building is generally indicated with the reference numeral 1. To describe the panel 1 it is

necessary to start from the ways of making it which are simple but at the same time inventive with respect to those of panels currently used. For the construction of the panel 1 it is necessary to form moulds which overall are of a mirror image with respect to that of the panel which it is desired to produce. Along the walls of the moulds are sprayed, with known processes, a mixture based on glass fibre, sand and cement, forming a casing which represents the outer cladding 2 of the panel 1. Within the casing 1 is then deposited thermal insulating material 3, for example a plurality of rigid blocks. During the positioning of the thermal insulating material 3 a zone or several zones of the panel 1 are left free in such a way as to define respective pockets 4 which in the example illustrated in Figure 3 are provided with an opening 5 formed in the cladding 2. This opening 5 is closed by a plate 6 provided with a door 7. After the panel 1 has been placed in position it is possible to fill the pocket or pockets 4 with a bulk material 8 having a high thermal inertia, such as, for example, sand, gravel, crushed stone, rejects from the ceramic industry, furnace rejects, etc. or mixtures of these.

From what has been described above, the panel 1 is therefore constituted by a layer of insulating material clad in a composite layer based on glass fibre, sand and cement, with at least one pocket prudently left to be filled, once placed in position, with a material having a high thermal inertia.

For simplicity of construction of the panel 1 it is possible to give this the most convenient form for the requirements of the constructor. The panel illustrated in Figures 1 and 2 is a non-limitative example of a particular shape. The panel 1 illustrated here comprises a face wall 11 from which inwardly extend four lateral mouldings 12, 13, 14 and 15 of which three have the same height as the wall 11. A small wall 16 also extends inwardly from the lower edge of this. With reference to Figure 2, the first two mouldings 12 and 13 define, together with a portion of the wall 11 and the wall 16, and together with a small upper wall 17 parallel to the wall 16, a niche 18 which can be used for a cupboard or for a wardrobe. At a higher level than that of the wall 16 another wall 21, almost parallel to the wall 16 extends from the wall 11, which, traversing the moulding 14 which is the lowermost, joins the mouldings 13 and 15 and defines in the panel 1 two lower adjacent niches 22 and 23 and two upper window openings 24 and 25. The niches 22 and 23 can be utilised as recesses for heat radiators, whilst the openings 24 and 25 evidently serve for the installation of two windows 26. In

particular the openings 24 and 25 are defined along the inner edge of the mouldings 13, 14 and 15 and the wall 21. Naturally, in correspondence with the openings 24 and 25 there are formed respective apertures 27 in the wall 11 (Figure 1). The upper edges of the openings 24 and 25 are defined by an element 28 joining the mouldings 13 and 14 and from which extends a plate 29 which is inclined upwardly to join with a further element 31 connecting between the edges of the apertures 27. The mouldings 13 and 15, the elements 28 and 31, and the plate 29 define a niche 32 which can form a recess for housing a shutter relating to the window 26.

All the parts of the panel 1 described up to now are made in the manner first indicated. The pocket or pockets 4 can be made in one or more of these parts depending on the convenience and accessibility of these. In this respect, given that the material 2 gives the panel 1 characteristics of high thermal inertia, it is preferable to form the pockets 4 in the mouldings 13, 14 and 15 which delimit the niches in which the radiators can be installed.

From what has been described above the advantages achieved with the embodiment of the present invention will be evident.

In particular, a panel 1 of reduced weight has been provided in a simple way in that the heavy materials are introduced only after it has been placed in position. This allows easy transport and simple positioning. Moreover, it is possible to fill the pockets 4 with bulk reject material 8 which is therefore of very low cost. Finally, it is to be noted that after it has been placed in position it is possible to vary the thermal inertia of the panel 1 at will by removing or introducing the material 8 into the pockets 4.

Finally, it is clear, that the panel 1 described and illustrated here can have modifications and variations introduced thereto without by this departing from the protective scope of the present invention.

Claims

1. A panel of improved type for industrialised building, characterised by the fact that it comprises an inner layer of thermal insulating material (3), an outer cladding (2) of a composition based on glass fibre, and at least one pocket (4) containing a quantity of bulk material (8) of high thermal inertia such as, for example, sand, cementitious concrete, gravel, working rejects from the ceramic industry, furnaces etc., or mixtures of these.

2. A panel according to Claim 1, characterised by the fact that the said pocket (4) has an opening (5) formed in the said cladding (2).

3. A panel according to Claim 2, characterised by the fact that the said opening (5) is provided with a closure plate (6).

4. A panel according to Claim 3, characterised by the fact that the said plate (6) is provided with a door (7).

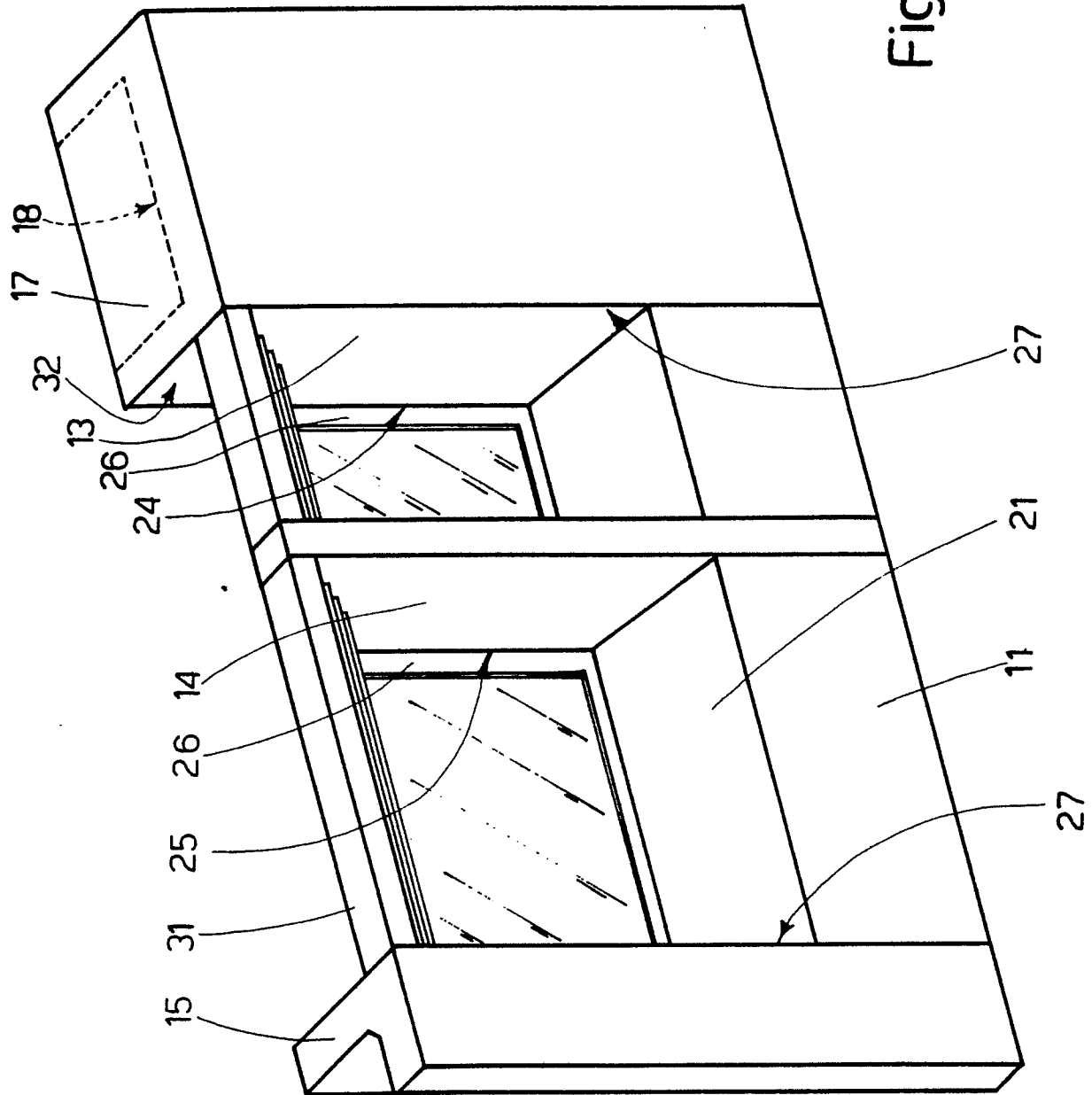
5. A panel according to at least one of the preceding Claims, characterised by the fact that it has a face wall (11) in which is formed at least one window opening (24, 25).

6. A panel according to Claim 5, characterised by the fact that a plurality of lateral mouldings (12, 13, 14, 15) extend from the said face wall (11) and between which there is defined at least a first niche (23, 24) of reduced height for housing heat radiators.

7. A panel according to Claim 6, characterised by the fact that between the said mouldings (12, 13) there is defined at least a second niche (18) of the same height as these.

8. A panel according to at least one of Claims from 5 to 7, characterised by the fact that above the said window opening (24, 25) there is defined at least a third niche (32) between two of the said mouldings (13, 15) which, in use, is able to serve as a housing for receiving shutters.

9. A panel according to Claim 8 when dependent on Claim 6 or Claim 7, characterised by the fact that the said pocket (4) is formed in correspondence with at least one of the said mouldings (12, 13, 14, 15).



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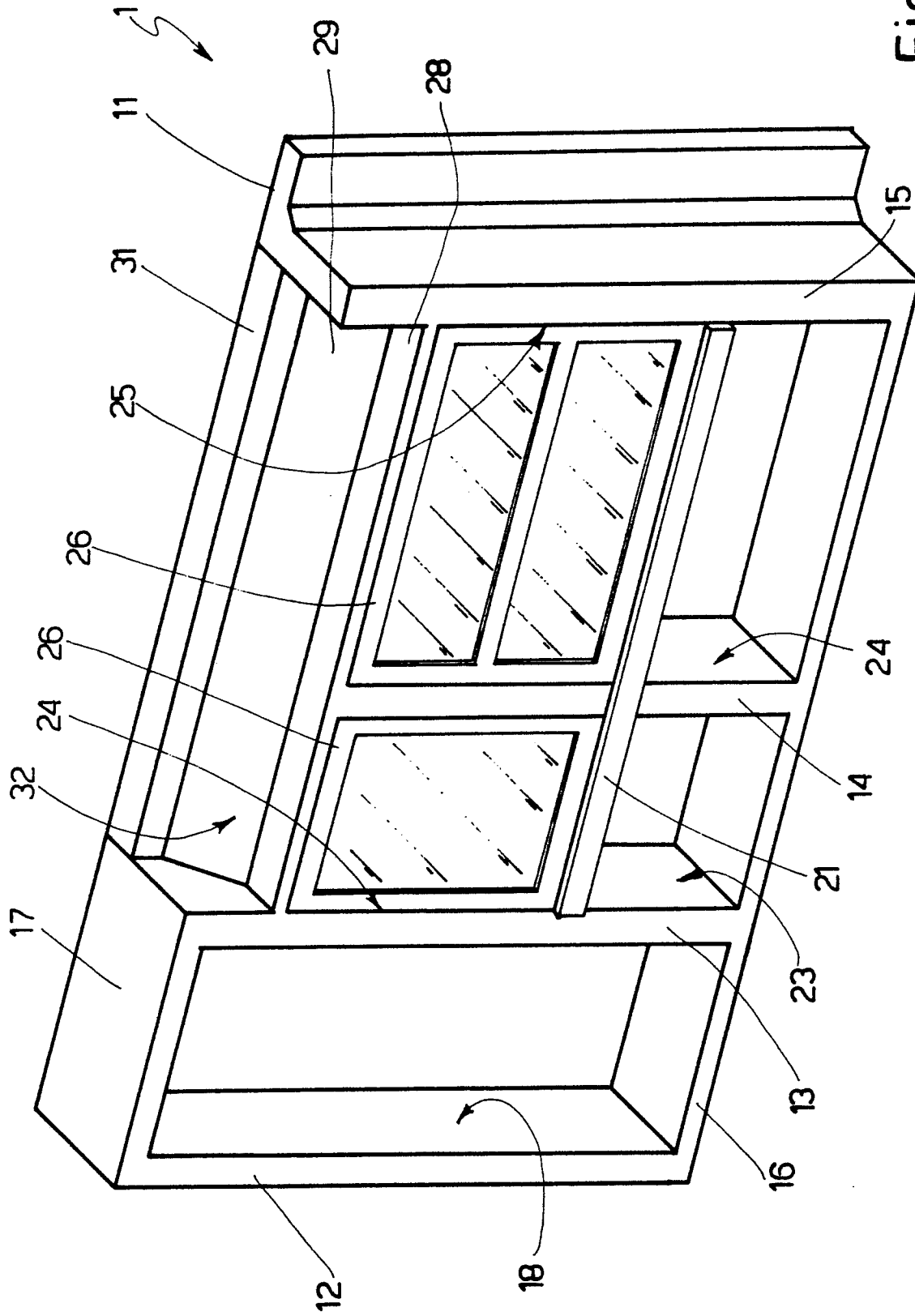


Fig. 2

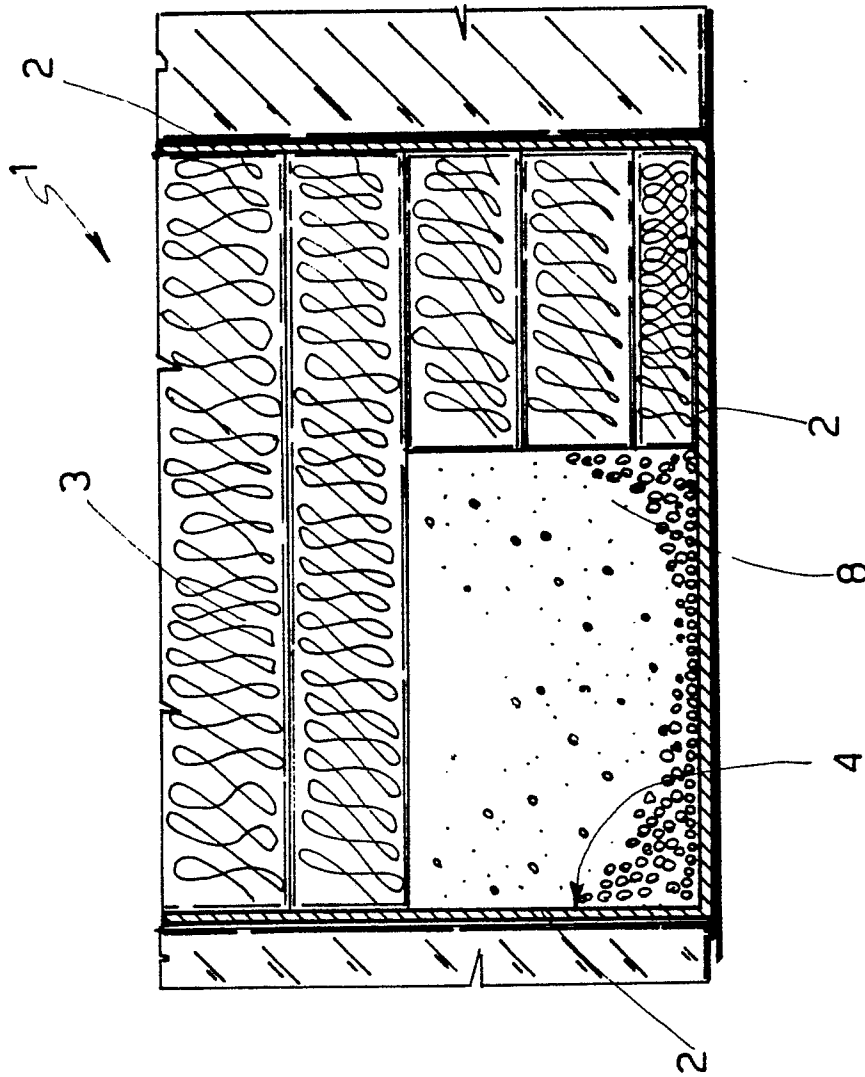


Fig.4

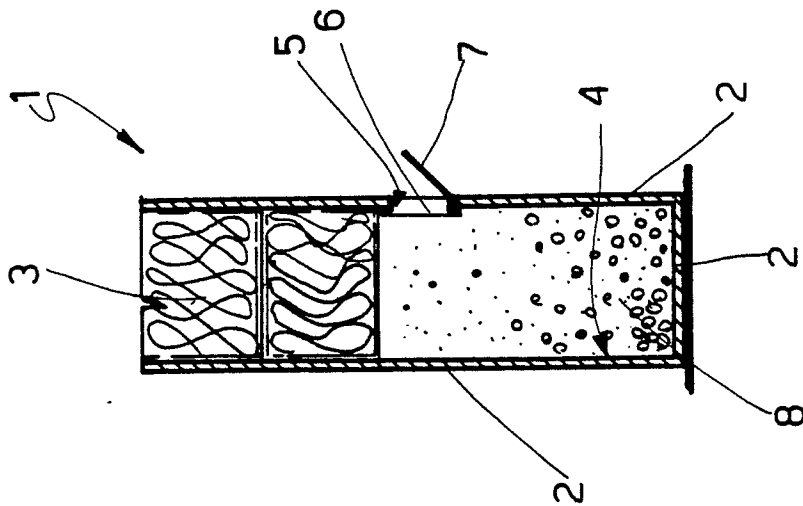


Fig.3