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EUROPEAN PATENT APPLICATION

(21) Application number: 85304925.2

(51) Int. Cl.⁴: E 04 F 15/024

(22) Date of filing: 10.07.85

(30) Priority: 10.07.84 GB 8417605

 (43) Date of publication of application:
 15.01.86 Bulletin 86/3

 (84) Designated Contracting States:
 AT BE CH DE FR GB IT LI LU NL SE

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(54) An improved access floor structure.

(57) An access floor structure consisting of one or more floor panels each supported at each corner on pedestal units, in which each floor panel comprises a plane rectangular laminar panel member formed of a wood composite material. A sheet of metal is mouted in touching contact with the lower surface of the panel member and has channels formed

therein extending across the full width thereof. Metal support beams are mounted on opposite sides of the panel and are connected to and extend transversely of the channels in the sheet of metal so that the load on the panel is carried by the channels and the support beams to the pedestal units at the corners of the panel.

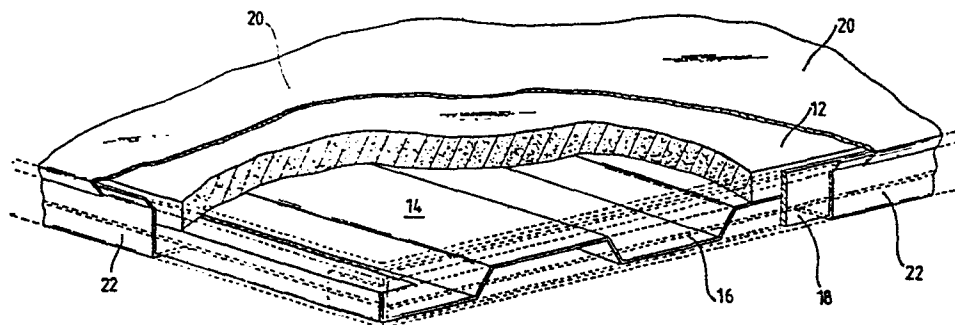


Fig.2.

1.

"An improved access floor structure"

This invention relates to an access floor structure of the type including one or more floor panels.

In known access floor structures, the panels are
5 usually supported at or adjacent to each corner on pedestals so that the floor panels are supported by the pedestals in spaced-apart relationship from a main structural floor of a building, thus enabling mains services, such as electrical cables, to be disposed
10 therebeneath.

It is necessary for the floor panels in use to be capable of supporting loads which are placed thereon and it is desirable for the floor panels to have good sound and thermal insulation properties in addition to
15 being fire resistant and having a wear resistant surface.

Known floor panels have been formed of steel fabrications which whilst having good structural properties, wear resistance, and fire resistance, suffer from the disadvantage of having relatively poor thermal
20 and sound insulation properties.

It is also known to provide floor panels formed of materials such as chipboard. However, although this type of panel has good sound and thermal insulation properties, such panels under load have been known to deform due to
25 the adhesive and wood particles from which the board is usually formed, moving or creeping producing a permanent deformation during the working life of such panels. In addition, where such panels are subjected to moisture, it is found that the panels warp to such an extent
30 that they become unusable, and the object of this

invention is to provide an access floor structure including panels in which the above disadvantages of the known panels are alleviated.

According to this invention, an access floor
5 structure includes one or more floor panels comprising a plane laminar panel member and a sheet metal panel disposed in touching contact with the lower surface of the plane laminar panel member, wherein the sheet metal panel has one or more elongate continuous ribs or channels
10 formed therein extending across the full width of said metal panel.

Preferably, metal support beams connected to and extending transversely of the ribs or channels in the metal panel are provided on opposite sides of the panel.

15 Preferably, also, the upper surface of the plane laminar panel member has a sheet of metal mounted thereon.

The edges of the panel are, preferably, provided with side strips connected to the sheet of metal mounted on the upper surface of the plane laminar panel member
20 and enclosing the metal support beams.

Preferably, the plane laminar panel member is formed of a wood composite material such as chipboard.

A preferred embodiment of this invention will now be described, by way of example only, with reference to
25 the accompanying drawings, of which:-

Figure 1 is a perspective view of a floor panel of an access floor structure; and

Figure 2 is a partly sectioned diagrammatic perspective view of one corner of the floor panel.

30 Referring now to the drawings, a full or partial access floor structure comprises one or more floor panels indicated generally at 10 which are supported at or

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adjacent to each corner thereof on pedestal units (not shown) so that the or each floor panel 10 is disposed in spaced-apart relationship from a main structural floor surface of a building (not shown) thus enabling mains services such as electrical cables, to be disposed therebeneath.

Each floor panel 10 comprises a plane rectangular laminar panel member 12 formed of a wood composite material such as, chipboard or the like. A sheet metal panel 12 is mounted in touching contact with the lower surface of the panel member 12 so that loads imposed on the panel member 12 are borne by the panel 14. The bending stresses and shear loads on the panel member 12 are thus carried by the panel 14 and the panel member 12 is primarily subjected in use to only compression loading.

The panel 14 has a plurality of spaced-apart channels 16 formed therein to increase the strength thereof, the channels 16 extending across the full width of the panel 14. Two metal support beams 18 are mounted on opposite sides of the panel 14 and are welded thereto so as to extend transversely of the channels 16. The load on the panel 10 is thus carried by the channels 16 and the support beams 18 to the corners of the panel 10 which are located on the pedestal units (not shown) of the access floor structure.

The upper surface of the panel member 12 has a sheet of metal 20 mounted thereon to provide a wear resistant surface and the edges of the sheet 20 are folded downwardly to connect with substantially L-shaped metal edge strips 22. The edge strips 22 are disposed at each edge of the panel 10, and the horizontal flanges of these strips engage under the marginal portions of the panel 10, so that they enclose the metal support beams, and provide additional structural support.

Although it is envisaged that the panel 14, the beams 18, the sheet 20 and the strips 22 will preferably be formed of mild steel, it will be appreciated that these components could be formed of other metals without departing from the scope of this invention.

The formation of the floor panel 10 from a combination of metal and wood composite provides a floor panel which is of high strength by utilisation of the advantageous properties of the wood composite when subjected to compression loading in combination with the advantageous properties of the metal channel configurations of the panel 14 together with the metal support beams 18 in resisting bending stresses and shear loading. Furthermore, the good sound and thermal insulation properties of wood composite are also combined in this floor panel with the wear resistance and fire resistance properties of the metal components thereof to provide an access floor structure and particularly a floor panel therefor in which the disadvantages of the known panels hereinbefore referred to are alleviated.

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Claims.

1. An access floor structure including one or more floor panels comprising a plane laminar panel member characterised in that a sheet metal panel (14) is disposed in touching contact with the lower surface of the plane laminar panel member (12), the sheet metal panel having one or more elongate continuous ribs or channels (16) formed therein extending across the full width of said metal panel.
2. An access floor structure including one or more floor panels according to Claim 1, characterised in that metal support beams (18) are connected to and extend transversely of the ribs or channels in the metal panel (14) on opposite sides of the panel.
3. An access floor structure including one or more floor panels according to Claim 1 or Claim 2, characterised in that the upper surface of the plane laminar panel member (12) has a sheet of metal (20) supported thereon.
4. An access floor structure including one or more floor panels according to Claim 2 and Claim 3, characterised in that the edges of the panel are provided with edge strips (22) connected to the sheet of metal (20) supported on the upper surface of the plane laminar panel member (12) and enclosing the metal support beams (18).

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5. An access floor structure including one or more floor panels according to any one of the preceding claims, characterised in that the plane laminar panel member (12) is formed of a wood composite material.

- 5 6. An access floor structure including one or more floor panels according to Claim 5, characterised in that the wood composite material is chipboard.

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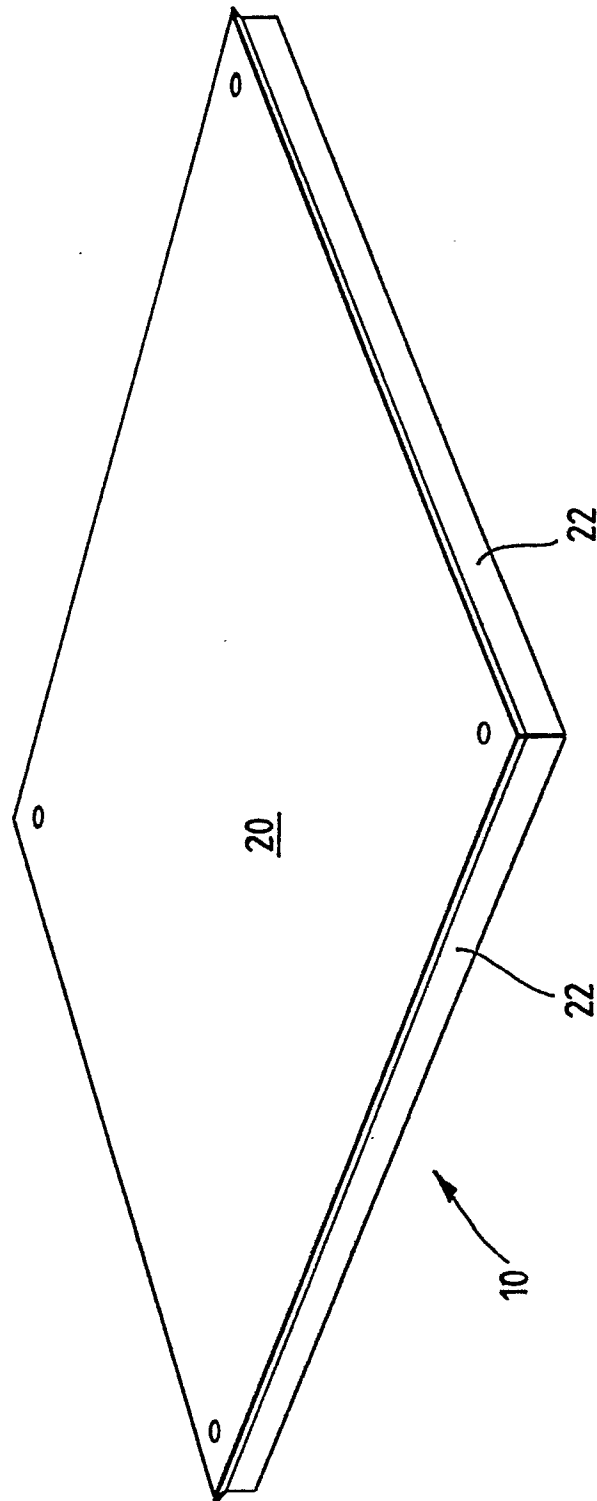


Fig.1.

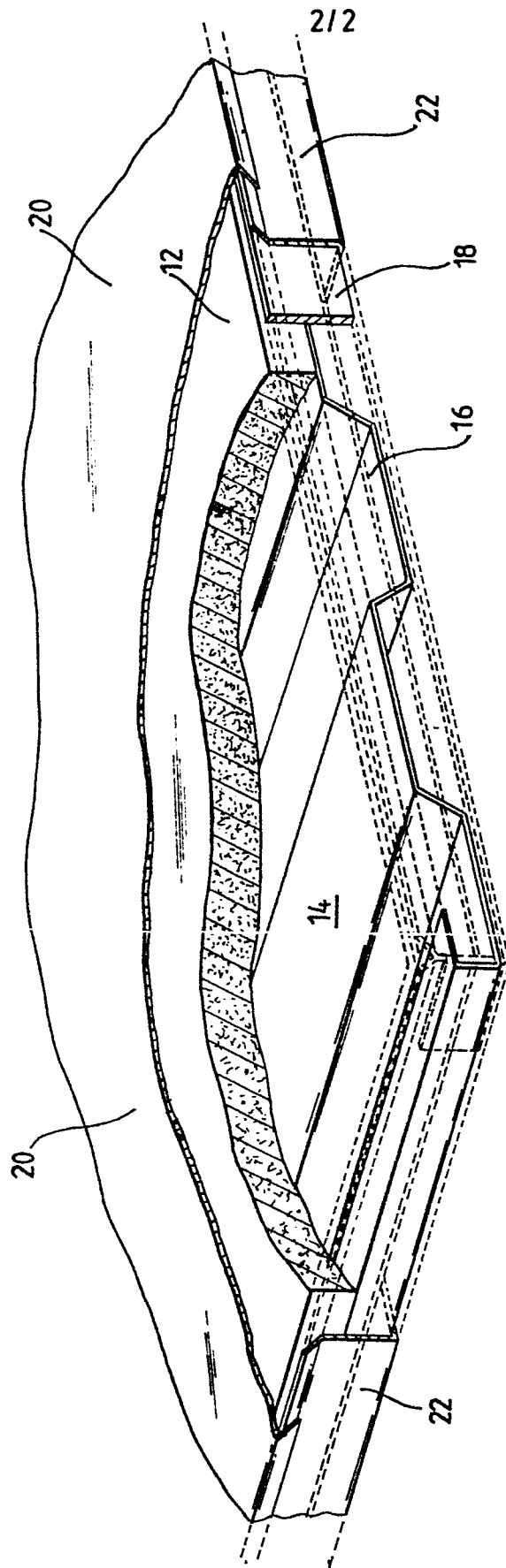


Fig.2.