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(54) A floor

(57) This floor comprises a pillared beam assembly. Said floor is characterized in that main floor beams (2) are supported on the pillars (1), secondary floor beams (3) being fitted between said main floor beams, joists (8) being transversally supported on said secondary floor beams, floor plates (9) forming the flooring base being arranged in a removable assembly on said joists, plates (11) forming a ceiling acting as an acoustic and fire barrier being secured below the main and secondary floor beams, said latter plates being secured below said floor beams with the intermediary of a metallic barrier (7). The main and secondary floor beams are provided with openings (4) for the passage of the components of the facilities equipping the building, the hollow space provided between the joists and the flooring base plates also serving this purpose.

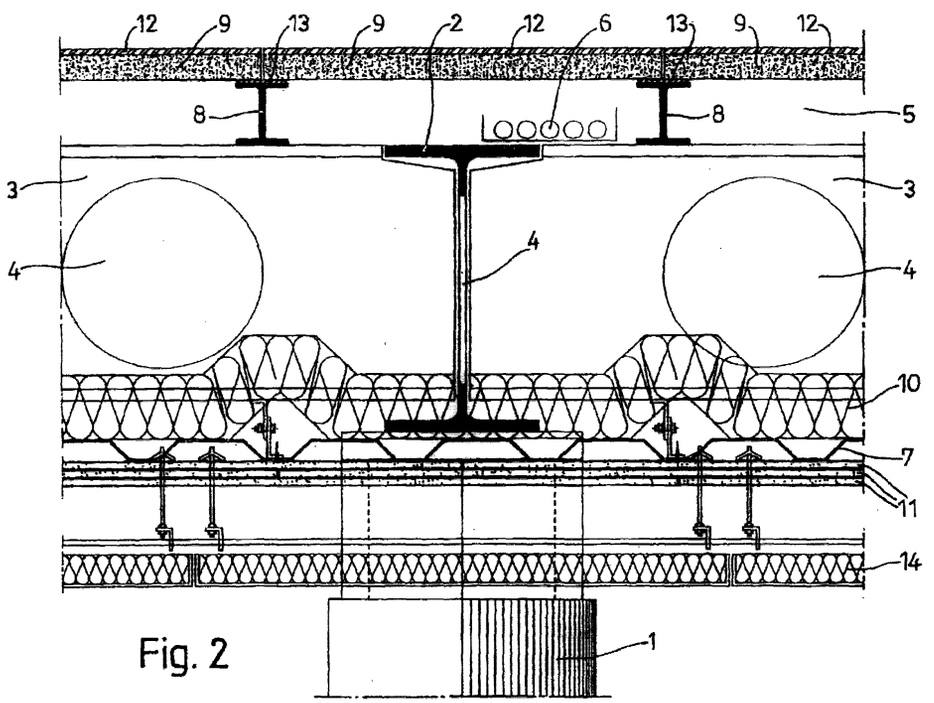

Fig. 2

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Description

[0001] The present invention relates to a floor providing the separation between storeys of buildings.

[0002] As is well known, floors consist of flat and horizontal structures that are supposed to have enough bearing capacity and rigidity, said structures supporting the flooring and defining or supporting the ceiling.

[0003] Both in the case of using floor beams and joists and arranging between them a filling of concrete, jack arches or other components, and in the case of using floor plates or slabs made of reinforced concrete or comprising ceramic members, known floors require much labour and time for their construction.

[0004] Because of their substantial weight this kind of floors have to be furthermore supported with a great number of pillars and with foundations being apt to provide a firm support for the construction, all this increasing the floor price per sq, mtr.

[0005] It is the object of this invention to provide a floor being both secure and more inexpensive, said new floor being apt to be assembled in a quick succession of steps and having a performance sensibly improving that of the conventional floors.

[0006] This floor is mainly characterized in that it comprises a general structure formed by pillars supporting main floor beams or bearing beams between which secondary floor beams are fitted which in their turn support joists transversally resting on them, floor plates forming the flooring base being arranged in a removable assembly on top of said joists, plates forming a ceiling acting as an acoustic and fire barrier being secured below said main and secondary floor beams.

[0007] The plates forming the ceiling are secured below the floor beams with the intermediary of a metallic barrier acting as a safety means to prevent labourers or objects from falling from one storey down to another during the floor assembly stages, said metallic barrier besides preventing the passage from one to another storey thus hampering a possible effraction and burgling into them.

[0008] Floor tiles are arranged on top of the flooring base plates, the components of the final flooring being arranged on top of said floor tiles, all of these elements being installed in a removable assembly.

[0009] This floor is assembled in a dry state and hence comprises a lightweight structure thus allowing to bridge long spans between pillars.

[0010] This is a metallic, prefabricated structure, the facility passages being integrated in the floor itself since this is a hollow, 100% practicable structure having its main and secondary beams provided with openings for the passage of the components of the facilities equipping the building such as the air conditioning and centralized, mechanical ventilation facilities, cables and ducts of various systems, etc., the hollow space provided between the joists and the flooring base plates also serving this purpose.

[0011] This floor does also comprise a layer of insulating material providing insulation against the air-propagated or ambient sound or noise, said insulating layer being provided on top of the metallic barrier, an insulating joint being provided between the joists and the flooring base plates to act as an insulation against the impact sound or noise.

[0012] This floor will if necessary comprise a horizontal bracing to transmit the horizontal stresses to the structure, said bracing being apt to be connected to a double skin thus allowing to obtain a more practical efficiency from the building's natural ventilation, this hence being a sensibly ecological floor allowing to save energy and providing a higher degree of comfort to the users of the building.

[0013] These and other characteristics will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying two sheets of drawings showing a practical embodiment cited only by way of an example not limiting the scope of the present invention.

[0014] In the drawings:

Fig. 1 shows in a sectional view the floor structure during the early stages of its construction, and
Fig. 2 illustrates in a sectional elevation the floor structure in its end stage.

[0015] According to the drawings this floor is supported on steel pillars 1 for example having a circular cross-section filled with cement or being of an H-shaped cross-section and enveloped in architectural cement thus providing an element of safety in case of fire. Main floor beams 2 are supported on these pillars, said beams being made of steel and being apt to bridge long spans (for example ranging from 8 to 14 or more metres), secondary floor beams 3 being fitted between these main floor beams and being also made of steel, all of these beams being provided with openings 4 for the passage of the components of the facilities equipping the building, a top free space 5 being available for the passage of the cables and ducts 6 belonging to the systems comprised by said facilities.

[0016] A metallic barrier 7 for example comprising a metal plate of channelled cross-section or a mesh is adjustably secured below the secondary floor beams 3.

[0017] Steel joists 8 are transversally supported on the secondary floor beams 3 in a wedge adjustable arrangement in order to provide a perfect horizontality for the floor, the height of said joists determining said space 5, prefabricated floor plates or slabs 9 being arranged on top of said joists in a removable assembly and forming the flooring base, said floor plates or slabs being made of concrete or silicocalcareous material, for example, and preferably measuring 60 x 60 cm.

[0018] A flexible layer 10 is arranged on top of the metallic barrier 7 and is made of a sound-absorbing material such as rock wool.

[0019] Once having installed the skin all around the building and having rendered this latter weatherproof plates 11 will be secured below the main and secondary floor beams, said plates for example being plasterboard plates forming the ceiling acting as an acoustic and fire barrier between two storeys.

[0020] Floor tiles 12 are arranged on top of said floor plates 9, the components of the final flooring being then arranged on top of said floor tiles and for example consisting of marble or granite, parquet or moquette pieces or pieces of other materials, all of these elements being installed in a removable assembly.

[0021] Between said joists 8 and said floor plates 9 a joint 13 is arranged to act as an insulation against impact noise.

[0022] The bottom surface of plates 11 forming the ceiling will be provided with a paint finish, or else a false ceiling 14 will be installed below said surface, said false ceiling being formed by an apertured metal plate provided with a rock wool insulating layer, said false ceiling allowing to install recessed lighting fittings.

Claims

1. A floor comprising a pillared beam assembly, **characterized in that** main floor beams are supported on the pillars, secondary floor beams being fitted between said main floor beams, joists being transversally supported on said secondary floor beams, floor plates forming the flooring base being arranged in a removable assembly on top of said joists, plates forming a ceiling acting as an acoustic and fire barrier being secured below said main and secondary floor beams.

2. A floor as per claim 1, **characterized in that** the main and secondary floor beams are provided with openings for the passage of the components of the facilities equipping the building, the hollow space provided between the joists and the flooring base plates also serving this purpose.

3. A floor as per claim 1, **characterized in that** the plates forming the ceiling are secured below the floor beams with the intermediary of a metallic barrier.

4. A floor as per claim 1, **characterized in that** floor tiles are arranged on top of the flooring base plates, the components of the final flooring being arranged on top of said floor tiles, all of these elements being installed in a removable assembly.

5. A floor as per claim 3, **characterized in that** a layer of soundproofing material is arranged on top of the metallic barrier.

6. A floor as per claim 1, **characterized in that** a soundproofing joint is arranged between the joists and the flooring base plates.

7. A floor as per claim 1, **characterized in that** the bottom surface of the plates forming the ceiling is provided with a paint finish.

8. A floor as per claim 1, **characterized in that** a false ceiling is installed below the plates forming the ceiling.

9. A floor as per claim 1, **characterized in that** said floor is provided with a horizontal bracing.

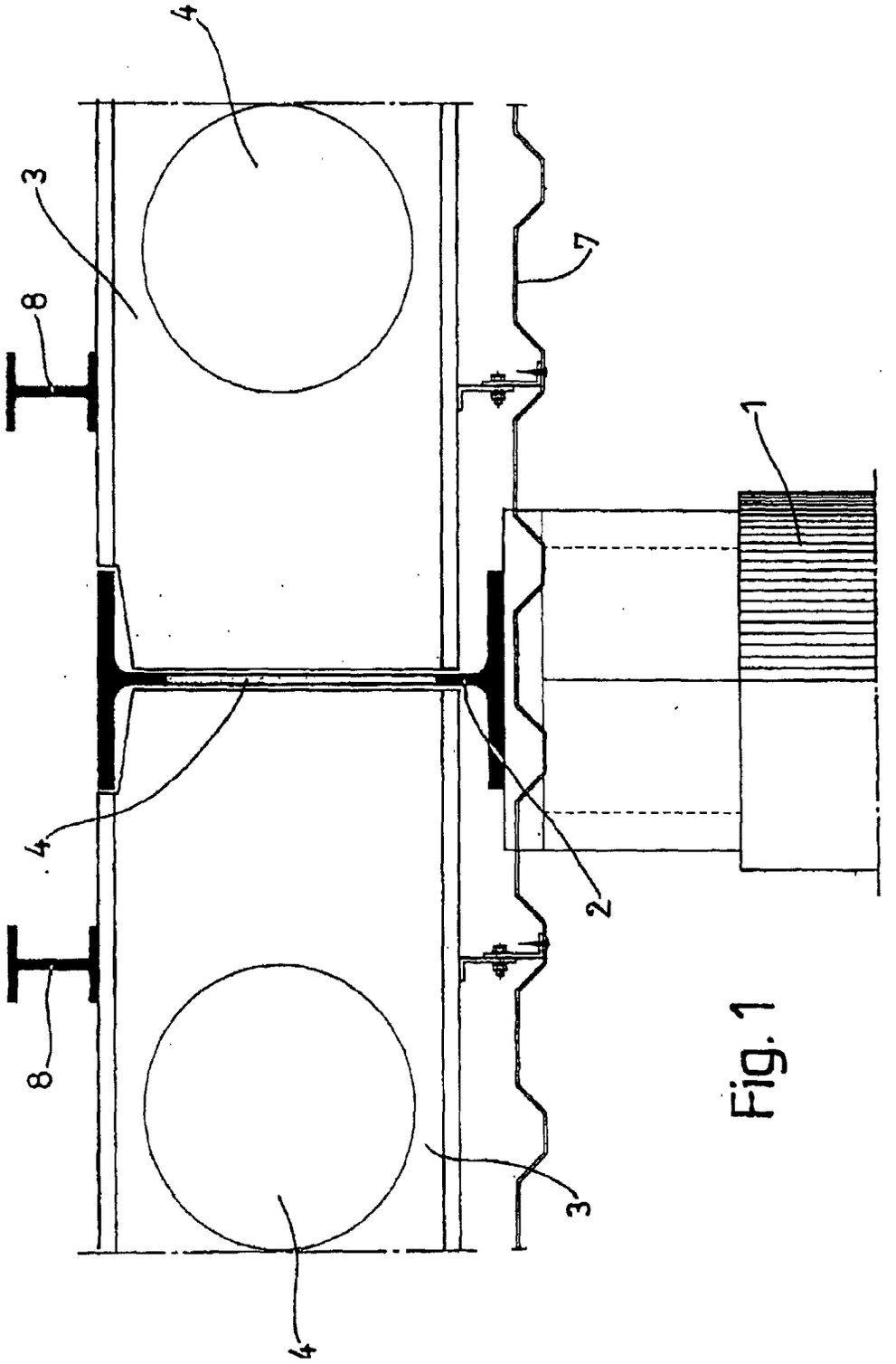

Fig. 1

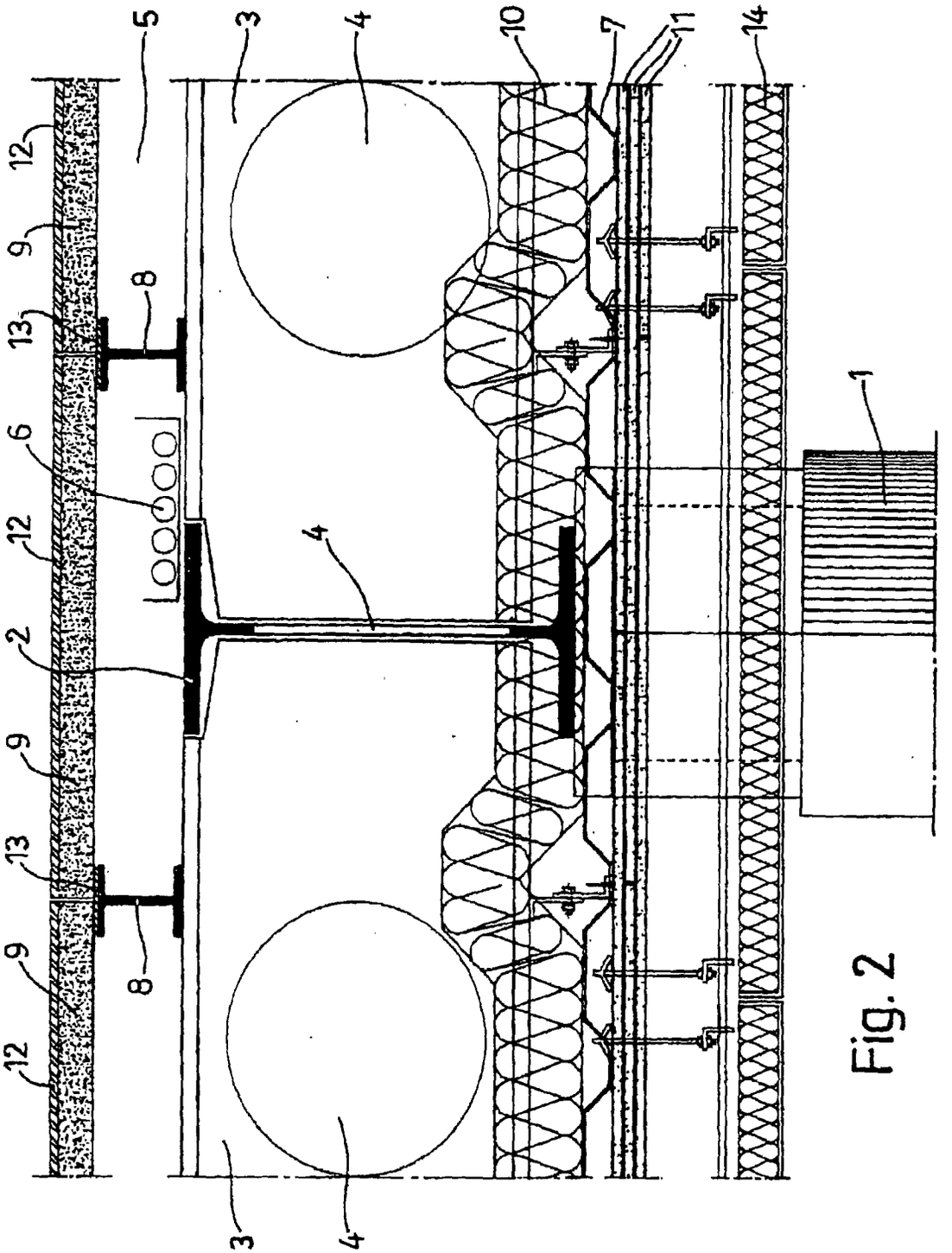

Fig. 2