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(54) Pavilion provided with conditioning means

(57) Pavilion for outdoor use comprising a tread surface (1) bearing onto the ground by means of respective supports (17); said tread surface (1) comprises a series of modular elements (6) for the conditioning of the pavilion fed by means of a heat generator and/or a heat pump through a suitable conditioning circuit (12, 13, 17); said modular elements (6) are supported by means of a series of load bearing frames (4) bearing onto the ground and assembled the one to the other in such a manner to consent a disposition of said modular elements (6) in accordance with any composition and length.

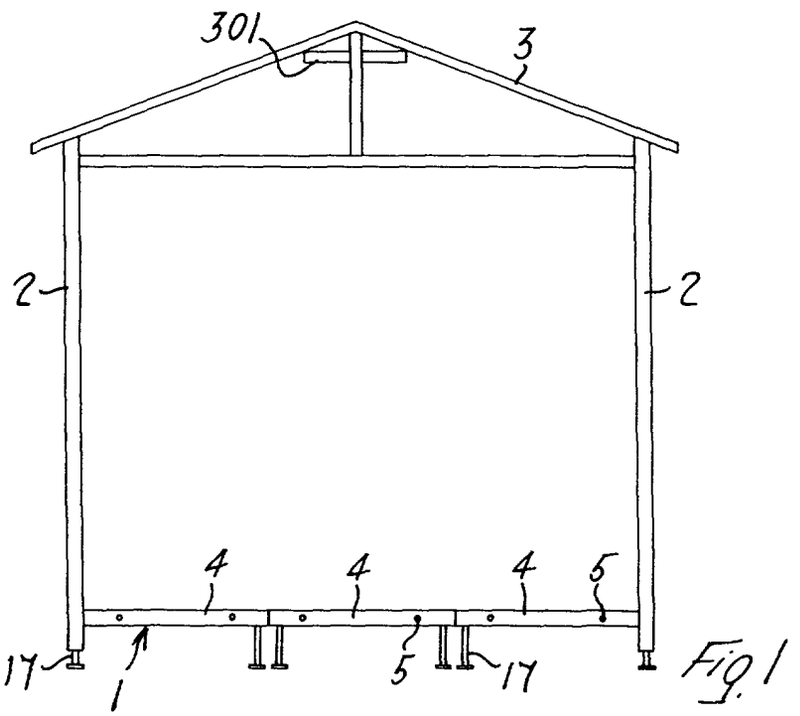

Fig. 1

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Description

[0001] The present invention relates to pavilions for outdoor use, such as the so-called "dehors" for bar activity, quick refreshment, and so on. In winter time, such pavilions are furnished with heating devices, generally constituted by aerial infrared elements. However these heating devices present serious drawbacks, since often concentrate excessively their calorific radiations on particular customers, with effects of poor or null comfort. The same applies for the cooling devices used in the summer.

[0002] Object of the present invention is therefore to obviate the drawbacks of the known pavilions for outdoor use.

[0003] Such object is achieved by the present invention by means of one pavilion for outdoor use comprising one tread surface bearing onto the ground by means of respective supports and constituted by one series of conditioning modular elements fed by an heat generator and/or by an heat pump through a suitable conditioning circuit; such modular elements are supported by one series of load bearing frames bearing onto the ground and assembled the one to the other in such a manner to allow a disposition of such modular elements according to any composition and length.

[0004] According to a further aspect of the present invention such conditioning modular elements are radiating panels connected by means of a conditioning circuit to at least one heat generator and/or one heat pump for feeding a conditioning fluid (liquid or gas).

[0005] The present invention will be referred by way of example to the case in which the pavilion should be heated by means of an heat generator.

[0006] Further purposes and advantages of the present invention will be better understood in the course of the following description, made by way of non-limiting example with reference to the attached drawings, in which:

Figure 1 is an elevation view in transverse section of a pavilion for outdoor use according to the present invention;

Figure 2 is a plan and partially section view of a heating radiating panel according to the invention;

Figures 3a and 3b are two transverse section views according to the line III-III of Figure 2 concerning two variations of embodiments of the heating radiating panel shown in said Figure;

Figure 4 is a schematic plan view illustrating the hydraulic connections between different heating radiating panel of the tread surface of a pavilion for outdoor use; and

Figure 5 and Figure 6 show two possible reciprocal disposition of the heating modules according to the invention.

[0007] In Figure 1 there is illustrated a pavilion for outdoor use comprising generally a tread surface 1, four side walls 2, and one roofing 3. Such tread surface 1 is constituted by one series of load bearing frames 4, everyone of which has the function of supporting one radiating panel 6, shown in Figure 2. Said load bearing frames 4 comprise exteriorly two transverse section bar 7 and two longitudinal section bars 8 which form a rectangular structure and in which there are obtained a series of through holes 5 which allow, as we will see, to assembly the frames 4 in any composition and length. Such frames 4, furthermore, are advantageously provided with ground support feet 17 adjustable in height.

[0008] In Figure 2 there is shown one radiating panel 6 supported by means of one of said load bearing frames 4 shown in Figure 1. In order to better comprise how the radiating panel 6 is realised, it is to be observed also the partial section of Figure 3a, together with the Figure 2. Such panel 6 comprises one lower plate 16 made of insulating material, one layer 9 of insulating material, such as glass wool or other, placed onto said lower plate 16, and one upper plate 10 of aluminium placed upon said layer 9 of insulating material and bearing onto the longitudinal section bars 8 of the frame 4. Said section bars 8 comprise also stand supports 11 for the lower plate 16 of the radiating panel 6. In contact with the lower surface of the aluminium plate 10, said radiating panel 6 shows longitudinally one series of copper pipes 12. In said pipes 12 there flows heated water supplied by means of two further copper pipelines 13 that are connected to one distribution manifold 17 (shown in Figure 4). Said pipes 12 are supported by means of one series of intermediate beams 14 fixed to the longitudinal section bars 8 of the loading bearing frame 4. Said frame 4 is completed by means of one central longitudinal member 15 bearing onto the ground and secured to the transversal section bars 7. As mentioned above on the walls of the longitudinal section bars 8 and transversal section bars 7 are obtained through holes 5 by means of which is possible to connect between them different adjacent frames 4 and thus place same according to diversified compositions and lengths.

[0009] The section of Figure 3b shows one embodiment of the radiating panel 6, in which between the lower surface of the upper plate 10 and the covering layer 9 there is obtained one interspace 20. Onto such layer 9 is placed one reflecting film 19 (for example in aluminium) by means of which the heat irradiated downwardly by the pipes 12 shall be reflected towards the aluminium upper plate 10.

[0010] In Figure 4 is schematically shown the tread surface 1 in which are inserted the radiating panels 6 bearing onto load bearing frames 4. The distribution pipelines 13 of the warm water to the pipes 12 are connected to distribution manifolds 17 that in this embodiment lead to one service zone 402 obtained in a load bearing frame 401. Consequently the remaining portion of the frame 401 shall be covered by a radiating panel 601 with minor section. The heating water that flows in

the distribution manifolds 17, in the distribution pipelines 13 and in the pipes 12 is produced by a boiler placed in said service zone 402 of the load bearing frame 401.

[0011] In case of utilisation of the aforesaid hydraulic circuit, together with the modular elements 6, in order to effect a refrigeration of the pavilion, in the service zone 402 of said load bearing frame can be introduced an heat pump.

[0012] Optionally, on the roofing 3, it is also possible to provide for the installation of one evaporator or diffuser 301 of air (hot or cold) connected to the heating or cooling circuit described up to this point (12, 13, 17).

[0013] In Figures 5 and 6 there are schematically shown two possible compositions of the tread surface 1 obtainable by means of the conditioning modular elements 6 and the respective load bearing frame 4. As it can be seen in both Figures it is sufficient to move near the load bearing frames of the conditioning modular elements 6 and to line up the respective holes 5 obtained in the transversal or longitudinal section bars of said frames: the assemblage in the obtained composition can be thus effected, for example by means of junction pins 18 inserted in said holes 5.

[0014] Finally, it has to be stated precisely that such tread surface 1 constituted by the panels 6 and by the load bearing frames 4 can be coated with any flooring.

Claims

1. Pavilion for outdoor use comprising a tread surface (1) bearing onto the ground by means of respective supports (17), **characterised by** the fact that said tread surface (1) comprises a series of modular elements (6) for the conditioning of the pavilion fed by means of a heat generator and/or a heat pump through a suitable conditioning circuit (12, 13, 17), said modular elements (6) being supported by means of a series of load bearing frames (4) bearing onto the ground and assembled the one to the other in such a manner to consent a disposition of said modular elements (6) in accordance with any composition and length.

2. Pavilion according to claim 1, **characterised by** the fact that said heat generator and/or heat pump is housed in one of said load bearing frame (401) comprising a service area (402) from which said conditioning circuit (12, 13, 17) branches out.

3. Pavilion according to claim 1, **characterised by** the fact that said conditioning modular elements, are radiating panel (6) connected by means of a suitable circuit (12, 13, 17) to the heat generator and/or heat pump for feeding a conditioning fluid.

4. Pavilion according to claim 1, **characterised by** the fact that said conditioning circuit (12, 13, 17) is connected to a warm or refrigerated air diffuser (301) housed in an area (3) of the pavilion in a raised position with respect to the tread surface (1).

5. Pavilion according to claim 3, **characterised by** the fact that each one of said load bearing frame (4) is made by longitudinal (8) and transversal (7) section bars carrying inside supports (11) for said panels (6).

6. Pavilion according to claim 1, **characterised by** the fact that said frames (6) comprise supports (17) adjustable in height with respect to the ground.

7. Pavilion according to claim 5, **characterised by** the fact that said frames (4) comprise at least one central longitudinal main frame member (15) bearing onto the ground and secured between said transversal section bars (7).

8. Pavilion according to claim 3, **characterised by** the fact that each of said radiating panels (6) is made at least by an insulating lower plate (16), of at least an upper plate (10) made of high thermal conductivity material, and at least one layer (9) of insulating material inserted between said plates (10,16), the lower surface of said upper plate (10) being placed in contact with pipes (12) inside which there flows said conditioning fluid supplied by the heat generator and/or heat pump.

9. Pavilion according to claim 8, **characterised by** the fact that said upper plate (10) is made of metallic material.

10. Pavilion according to claim 8, **characterised by** the fact that on the upper surface of the insulating material layer (9) there is attached one film (19) made of material suitable to reflect the thermal flow irradiated by the pipes (12), between said layer (9) of insulating material and the upper plate (10) there being obtained one interspace (20).

11. Pavilion according to claim 3, **characterised by** the fact that onto said longitudinal section bars (8) and said transversal section bars (7) of each frame (4) are obtained through holes (5) that, upon assembly of the frames (4) according to any composition and length, are aligned with the through holes (5) of one adjacent frame, said adjacent frames being united by means of proper assembling elements (18) inserted in said through holes (5).

12. Pavilion according to claim 8, **characterised by** the fact that said frames (4) comprise intermediate load bearing beams (14) for said pipes (12) fixed between said longitudinal section bars (8).

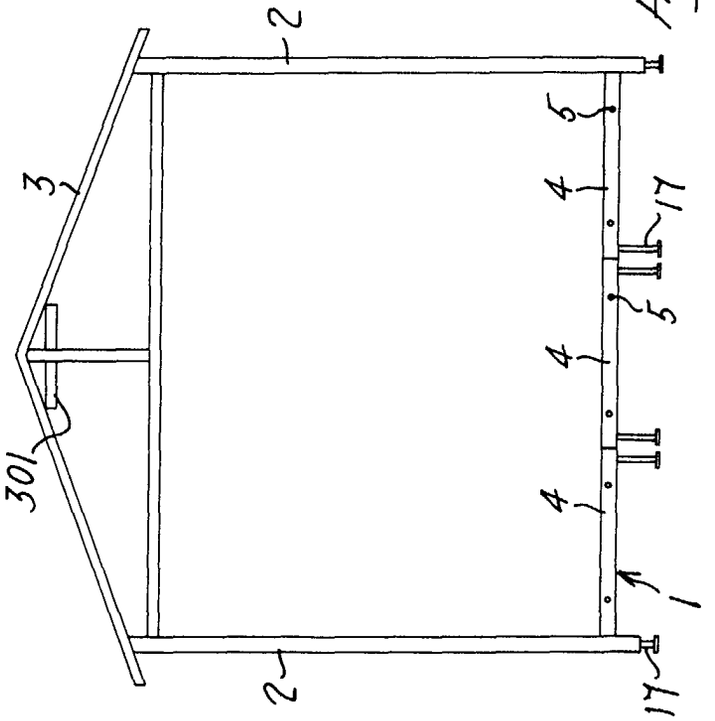


Fig. 1

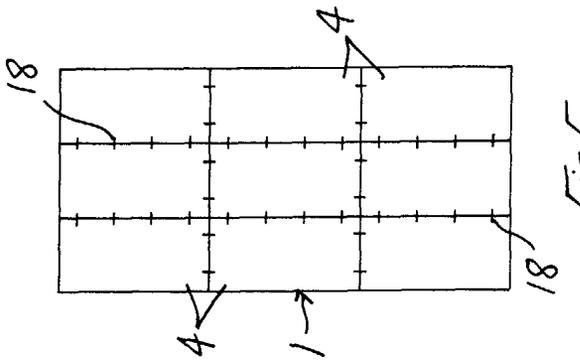


Fig. 5

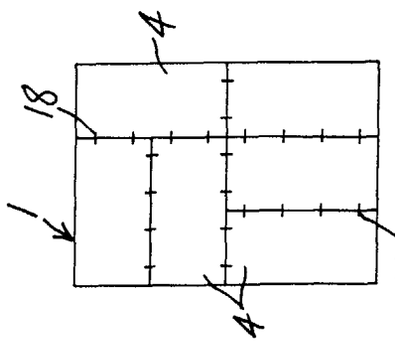


Fig. 6

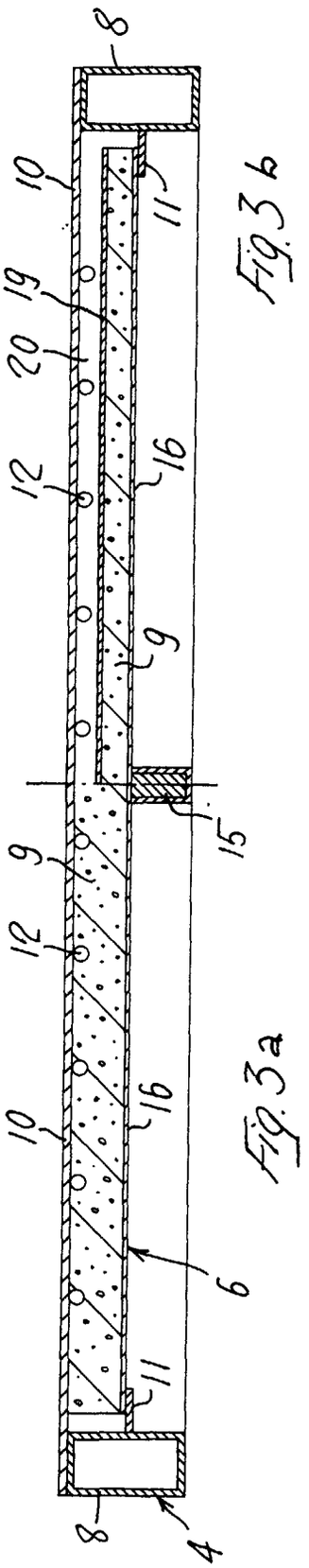
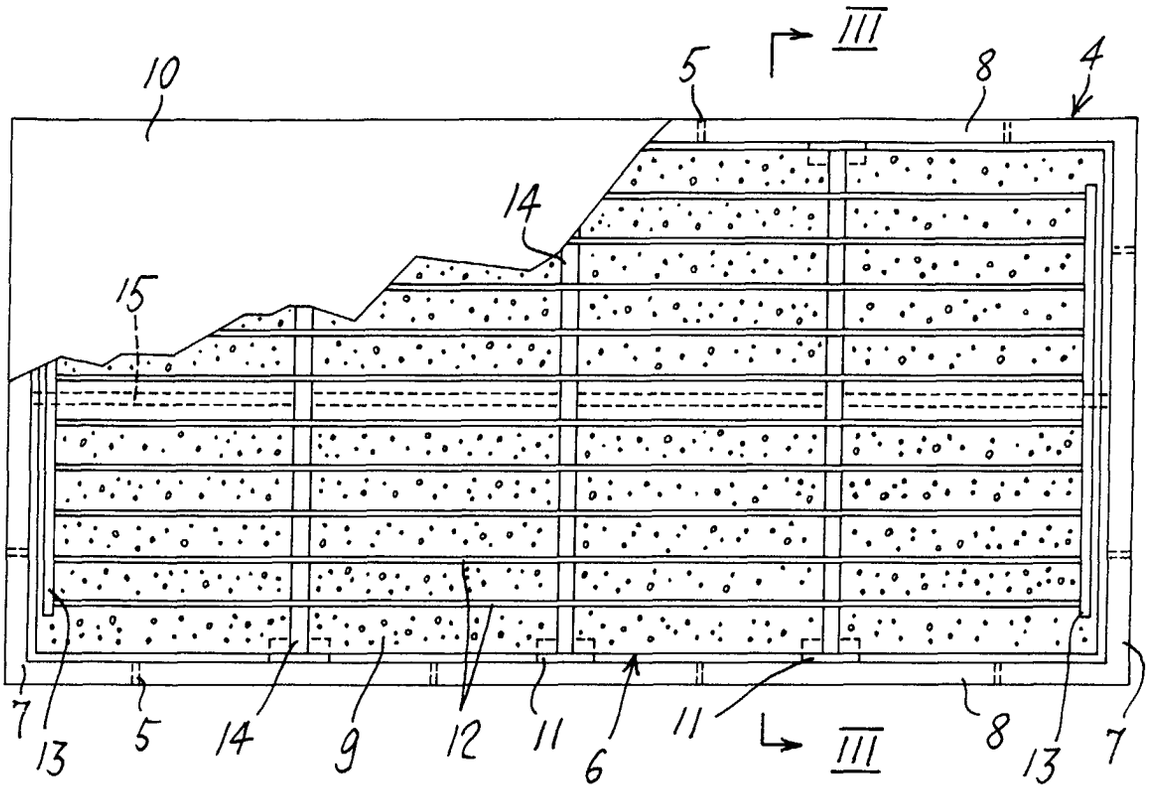


Fig. 3a

Fig. 3b


III
10
5
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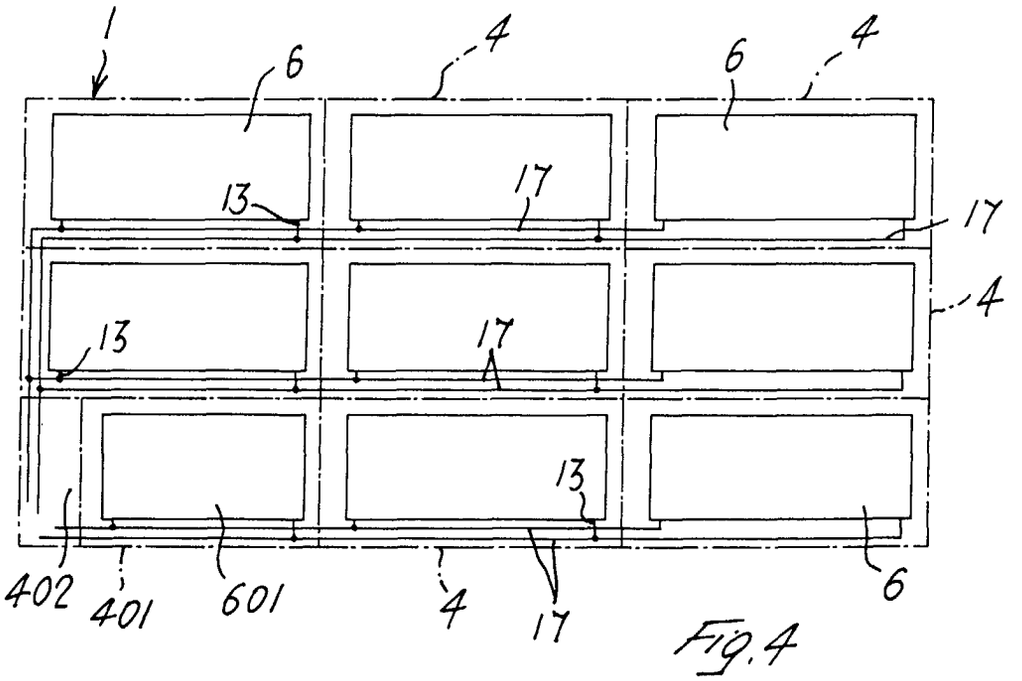
14
9
12
11
6
11
III
8
13
7

Fig. 2


1
6
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6
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13
17
17
4
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17
13
402
401
601
4
17
6

Fig. 4