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Claim 11 is deemed to be abandoned due to non-payment of the claims fee (Rule 31 (2) EPC).

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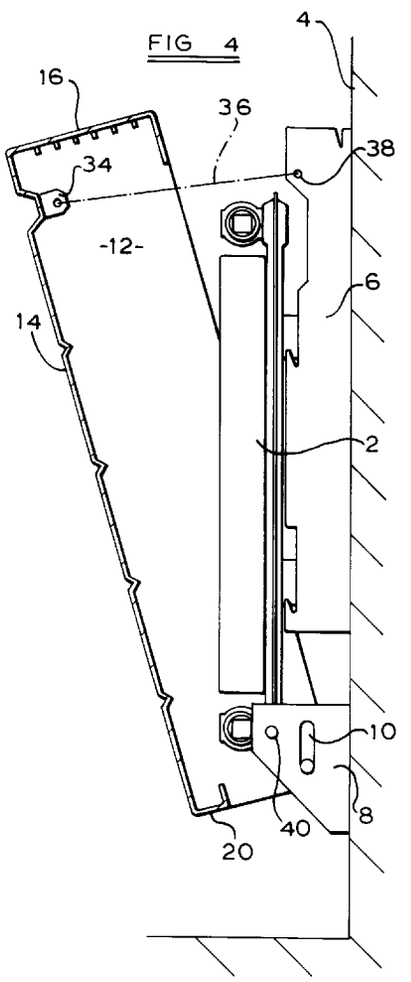
(54) Heater assembly.

(57) A space heater assembly especially in the form of a hot water radiator 2 mounted on a wall 4 is provided with a cover 12 which is dimensioned to enclose the radiator 2, the cover 12 being adapted for movement between a closed operational position substantially enclosing the forward, upper and side surfaces of the radiator 2, and an open position which allows access e.g. to the controls of the radiator 2. A locking device 40 may be provided for locking the cover in the closed position (Fig. 4).

FIG 4



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The present invention relates to a space heater assembly.

When using space heaters, such as for example radiators, to heat the interior of a building to a specified temperature, it has been found that the radiator surface temperature may rise sufficiently to burn anyone touching the radiator. This problem is particularly serious when radiators are used in establishments such as hospitals, nurseries or residential homes for the elderly where the occupants are sometimes not very mobile or aware of the danger of touching a radiator.

It is an aim of the invention to alleviate the abovementioned problem, and according to the present invention there is provided a space heater assembly for mounting to a support surface, and a cover dimensioned to enclose the heater, in which the cover is adapted for pivotal movement between a closed operational position substantially enclosing the forward, upper and side surfaces of the heater, and an open position to allow access to the heater.

The cover may be dimensioned so that when it is in the closed position there is only a very small gap between the support surface and the adjacent part of the cover. This arrangement of the cover and support surface ensures that it is not possible to obtain access to the heater when the cover is in the closed position.

In one embodiment of the invention, the said heater takes the form of a hot water radiator, which is provided with one or more control valves for controlling the flow of hot water through said radiator, said control valve or valves being located within said cover when said cover is in the closed position.

Conveniently, said radiator is mounted on a vertical support surface and said cover is pivotally mounted on one or more support brackets which are also mounted on said surface.

Advantageously it may be arranged that the pivotal axis of said cover on said one or more support brackets is vertically adjustable whereby said cover is moved from its closed position to its open position by lifting said cover and pivoting it away from said support surface to allow access to said heater.

In a preferred arrangement, the one or more support brackets are located near the bottom of said heater whereby said cover is moved to its open position by lifting said cover and pivoting the top part thereof away from said support surface.

In an especially preferred arrangement, a locking device will be provided for locking said cover in the closed position, said locking device conveniently comprising a screw device carried by said cover and accessible through an aperture therein, said screw device co-acting with an abutment on said one or more support brackets for locking said cover in the closed position.

It may be arranged that said hot water radiator comprises an air venting screw adapted to be operated by a venting key, in which case said screw device of said locking device may also be adapted to be operated by said venting key.

In an arrangement in which said assembly is mounted on said support surface in spaced relationship to a floor, a bottom cover may be provided which extends from said cover to said floor.

It is an important feature of the invention that there is no direct contact between the heater and the cover thereby preventing heat conduction from the heater to the cover.

One embodiment of the invention will now be described by way of example with reference to the accompanying illustrative diagrammatic drawings in which:-

Figure 1 is an end view of a radiator assembly of the invention with the cover in its closed position;

Figure 2 is an end view of the radiator assembly of Figure 1 with the cover in its open position;

Figure 3 is an end view of the radiator assembly of Figure 1 with the cover in its closed position, and one side of the cover removed;

Figure 4 is an end view of the radiator assembly of Figure 1 with the cover in its open position, and one side of the cover removed;

Figure 5 is a plan view of one pivot mounting arrangement of the radiator assembly of Figure 1.

Figure 6 is a front view of the radiator assembly of Figure 1 with the cover in its closed position; and

Figure 7 is a plan view from above of the radiator assembly of Figure 1 with the cover in its closed position.

Referring to the drawings, a radiator assembly of the invention includes a single panel radiator 2 mounted on a wall 4 of a room by two laterally spaced vertical support brackets 6. Two laterally spaced pivot brackets 8 are secured to the wall 4, and each bracket has a vertical slot 10 therein.

A radiator cover 12 is constructed of sheet metal and comprises a front face 14, an upper panel 16, two side panels 18 and a small lower panel 20. A series of vertically spaced grooves 28 extend horizontally along the front face 14, and a series of laterally spaced ventilation grills 30 are formed in the upper panel 16.

Two inwardly extending tags 34 are formed in the upper part of the front face 14, adjacent to the side panels 18. Two restraint chains 36 are mounted to and extend between the tags 34 and corresponding anchor points 38 on the brackets 6. As shown in Figures 2 and 4, the length of these restraint chains 36 defines the position of the cover 12 when in its fully open position.

Referring particularly to Figure 5, the cover 12 is mounted on the pivot brackets 8 by means of two pivot pins 32 which are secured to and extend inwardly from respective side panels 18 to project through the slots 10. These pivot pins 32 are stepped to prevent

undue lateral movement of the cover 12.

A locking screw 40, having a circular stop flange 41 thereon, is in screw-threaded engagement with a housing member 42 secured to the inner surface of the lower part of one of the side panels 18. Access to the head 44 of the locking screw is provided by an aperture 46 in the side panel 18, the aperture 46 being smaller than the flange 41.

When the cover 12 is in its closed position, the locking screw 40 is aligned with an aperture 48 in the associated pivot bracket 8. When the locking screw 40 is screwed into its advanced locking position the flange 41 abuts the housing member 42, and the screw 40 extends through the aperture 48 to prevent movement of the cover 12 relative to the radiator 2. When it is desired to move the cover 12 to its open position, the locking screw is unscrewed so as to withdraw the screw stem from the aperture 48, until the flange 41 abuts the side panel 18. The locking screw head 44 is designed so that it can be rotated by the radiator air venting key so as to withdraw or advance the screw.

The arrangement of the threaded housing member 42 and the side panel 18 is such that a chamber 47 is formed in which the locking screw head 44 is restrained and allowed only sufficient axial movement for the screw to engage or disengage itself from the pivot bracket 8.

This feature prevents inadvertent disengagement of the threads of the locking screw 40, and housing member 42.

The cover 12 is shaped and dimensioned so that the rear edges of the upper panel 16 and the side panels 18 extend almost to the wall 4 when the cover 12 is in the closed position. This prevents people from reaching round the back of the cover 12 and touching the hot surfaces of the radiator, and also reduces the chances of debris falling onto the radiator.

The radiator control valves and adjacent pipework are also enclosed by the cover 12 when the cover is in its closed position. This prevents people from being burnt by touching the pipework and control valves, and prevents interference with the radiator valve settings.

The heater may be used with a thermostatically controlled radiator or heater valve. In this arrangement the thermostatic control head is mounted remotely from the heater.

The illustrated radiator assembly has been designed so that the surface temperature of the cover 12 will not exceed 43°C when the radiator 2 is operating at a surface temperature of 75°C.

It will be appreciated that in many installations, pipework to the panel radiator 2 will extend upwards from the floor to the radiator. In the arrangement which has been described, the cover 12 will not fully enclose this pipework. Where it is desired to fully enclose the pipework, the assembly may be provided with a bottom cover 50, shown in dashed lines in Fig. 1 which extends between the floor and the bottom of the cover 12.

It may be arranged, for example, that the bottom cover 50 is fixed in position by screws which are operated by a vent key as is the locking screw 40.

It is to be understood that this invention is not restricted to a radiator, and is applicable to any suitable type of heater.

Claims

1. A space heater assembly for mounting to a support surface, and a cover dimensioned to enclose the heater, in which the cover is adapted for pivotal movement between a closed operational position substantially enclosing the forward, upper and side surfaces of the heater, and an open position to allow access to the heater.

2. An assembly as claimed in claim 1, in which said heater takes the form of a hot water radiator.

3. An assembly as claimed in claim 2, in which said radiator is provided with one or more control valves for controlling the flow of hot water through said radiator, said control valve or valves being located within said cover when said cover is in the closed position.

4. An assembly as claimed in claim 2 or claim 3, in which said radiator is mounted on a vertical support surface and said cover is pivotally mounted on one or more support brackets which are also mounted on said surface.

5. An assembly as claimed in claim 4, in which the pivotal axis of said cover on said one or more support brackets is vertically adjustable whereby said cover is moved from its closed position to its open position by lifting said cover and pivoting it away from said support surface to allow access to said heater.

6. An assembly as claimed in claim 5, in which the one or more support brackets are located near the bottom of said heater whereby said cover is moved to its open position by lifting said cover and pivoting the top part thereof away form said support surface.

7. An assembly as claimed in any of claims 2 to 6, comprising a locking device for locking said cover in the closed position.

8. An assembly as claimed in claim 7, in which said locking device comprises a screw device carried

by said cover and accessible through an aperture therein, said screw device co-acting with an abutment on said one or more support brackets for locking said cover in the closed position.

9. An assembly as claimed in claim 8, in which said hot water radiator comprises an air venting screw adapted to be operated by a venting key, and in which said screw device of said locking device is also adapted to be operated by said venting key.

10. An assembly as claimed in any preceding claim, which is mounted on said support surface in spaced relationship to a floor, in which a bottom cover is provided which extends from said cover to said floor.

FIG 1

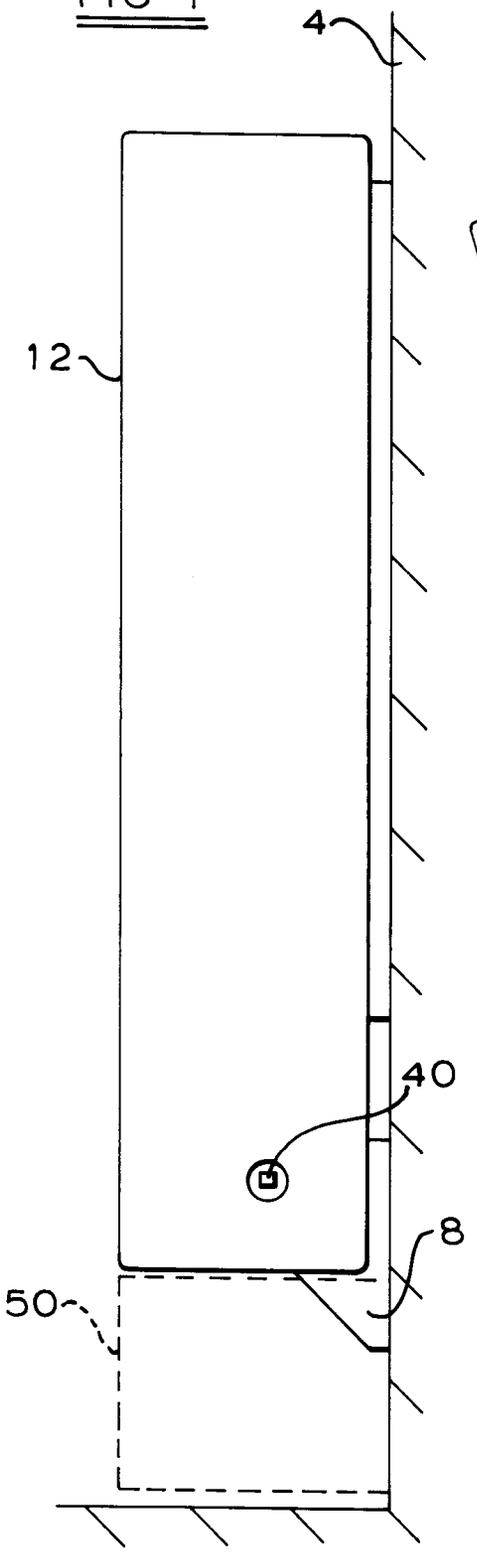


FIG 2

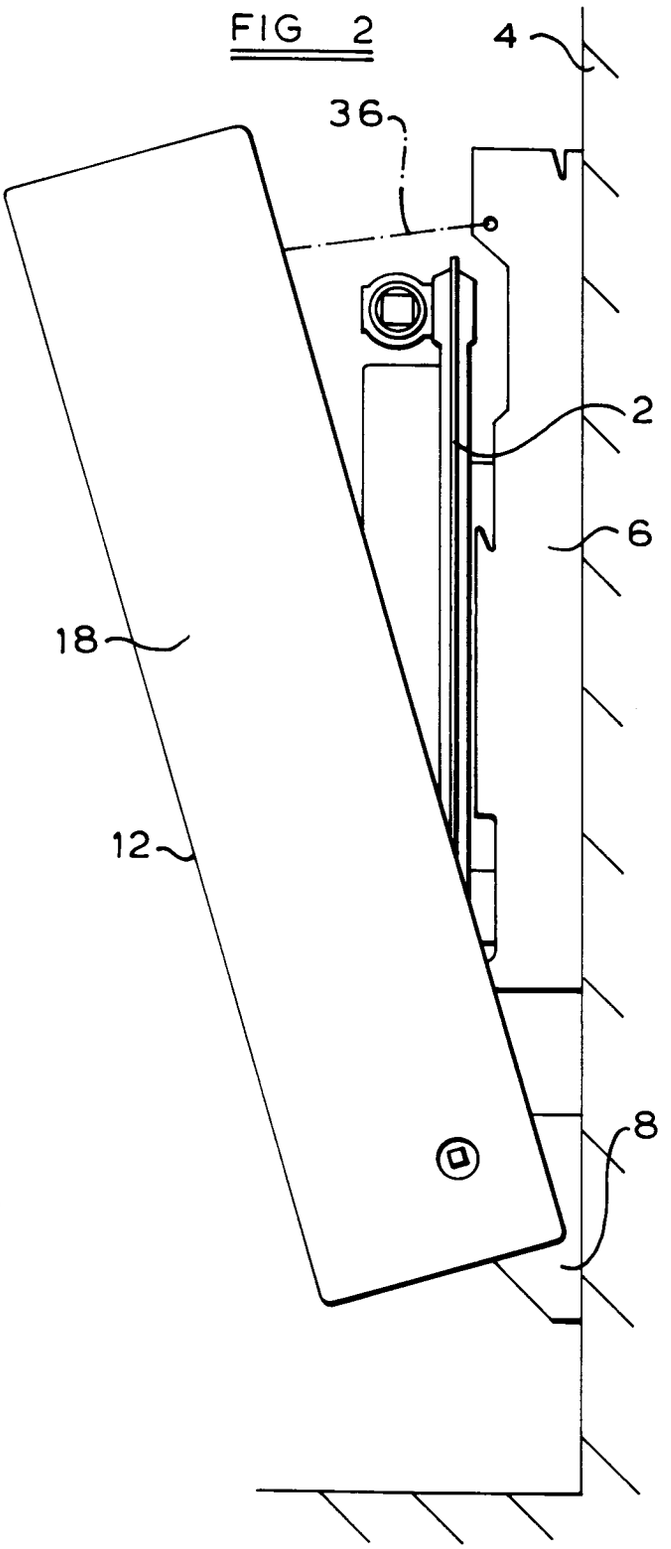


FIG 3

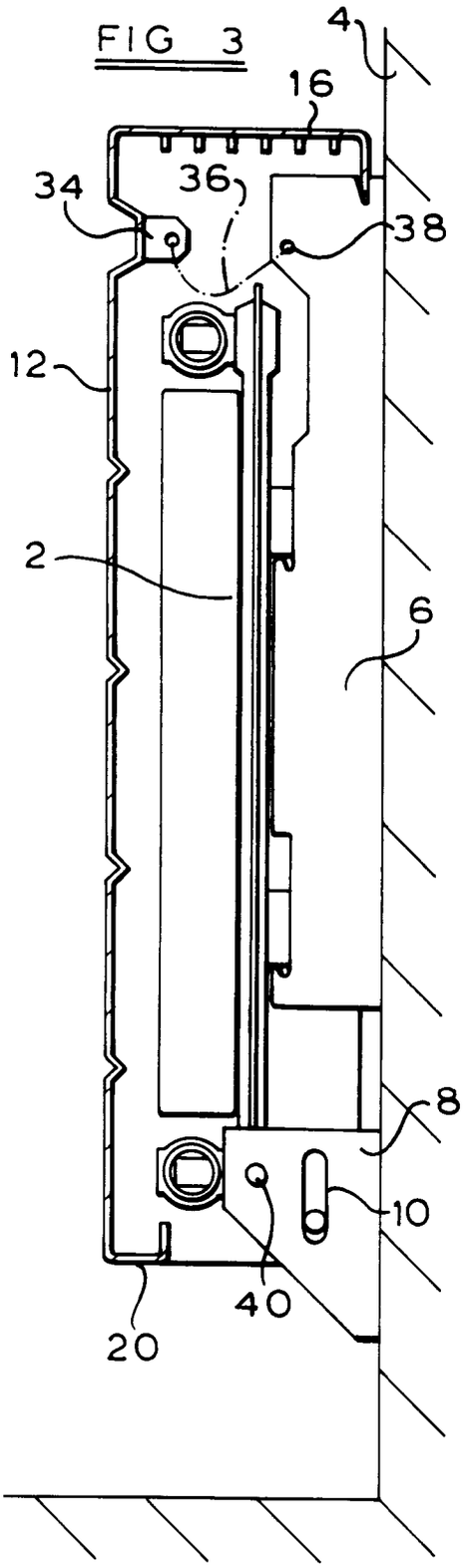
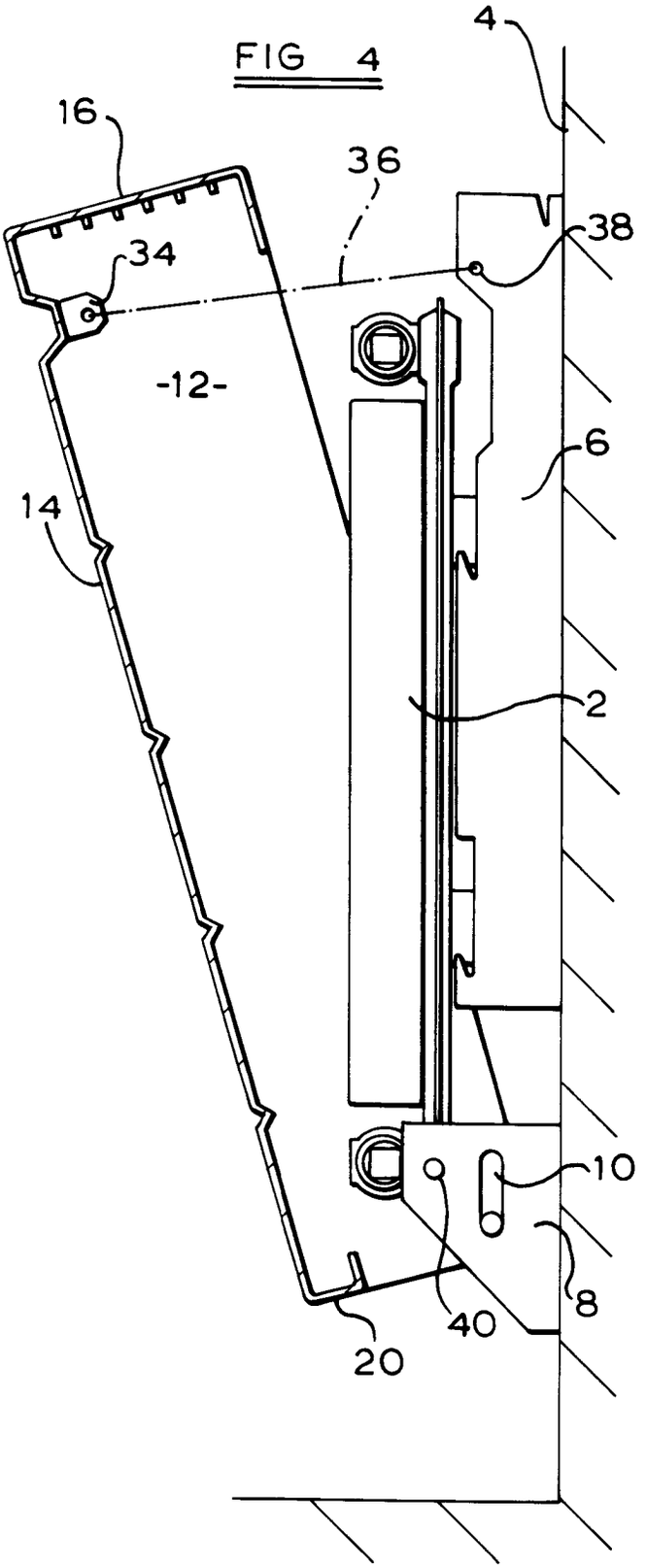


FIG 4



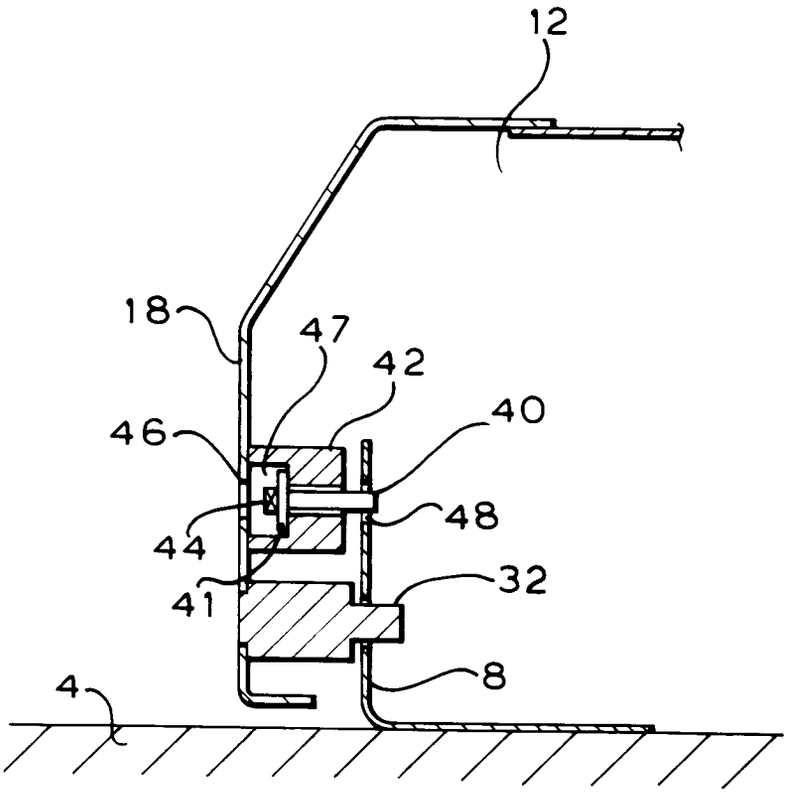


FIG 5

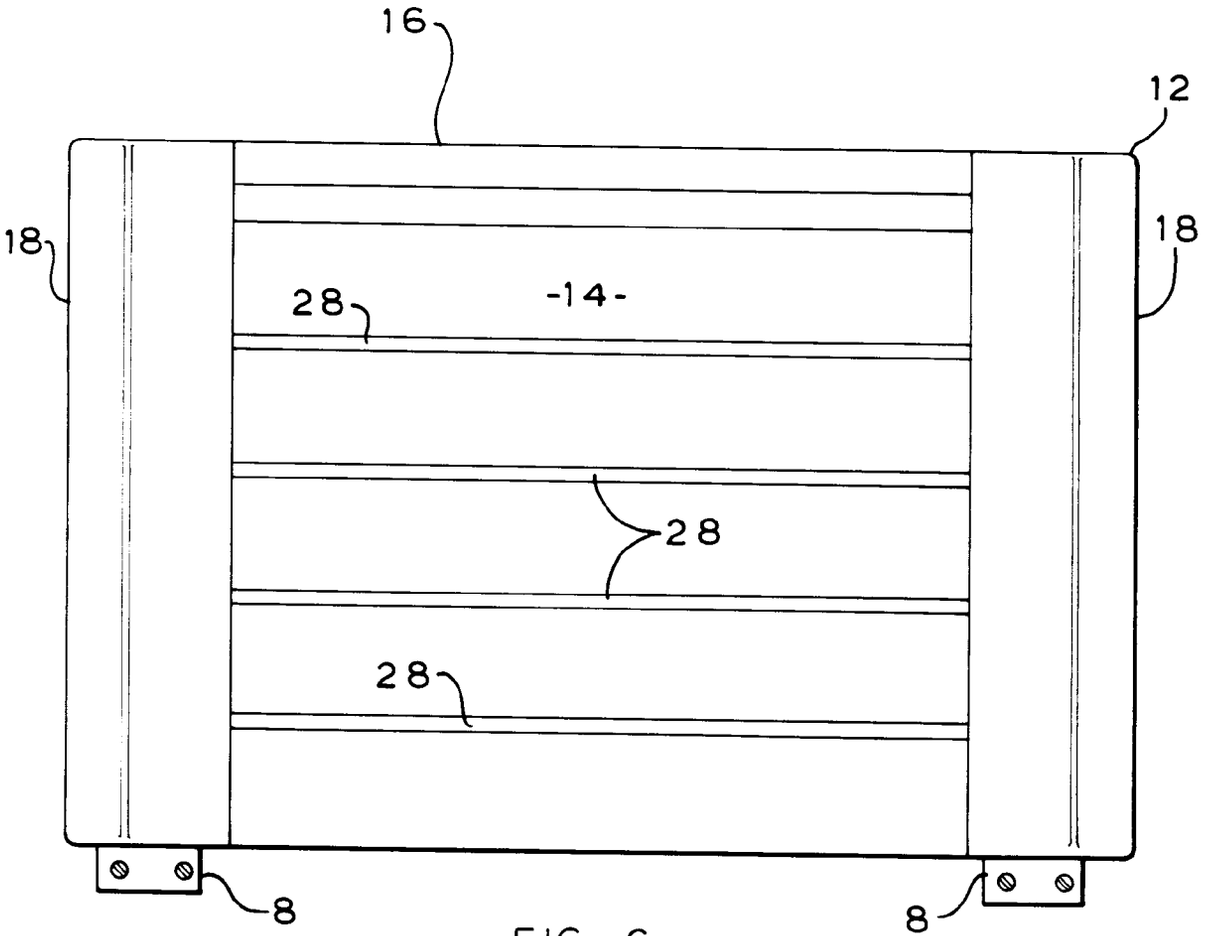


FIG 6

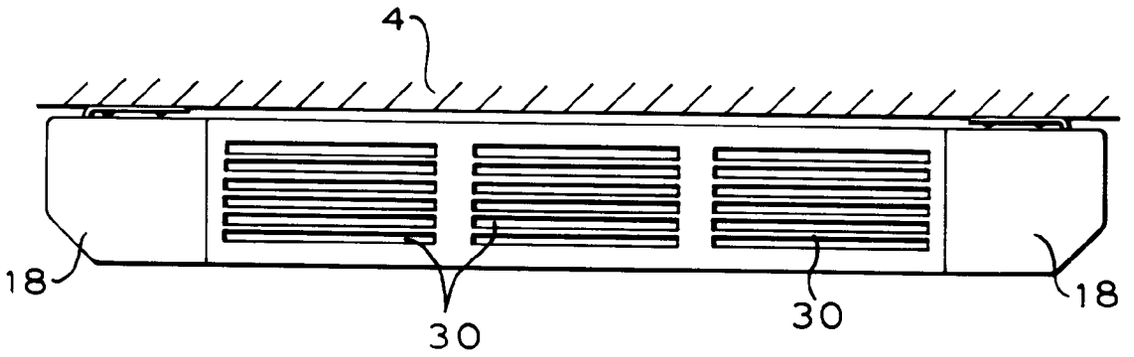


FIG 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 30 9426

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-2 355 747 (LICENTIA PATENT-VERWALTUNGS-GMBH) * claims 1,4,5 * ---	1	F24D19/06
A	US-A-2 225 722 (SPIETH) * figures * ---	1,2	
A	FR-A-2 132 332 (KUBA KUHLERFABRIK BAIERBRUNN H. W. SCHMITZ) * the whole document * ---	1,2,3	
A	DE-C-648 949 (GRAEPEL) * the whole document * -----	1,2	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5) F24D F24H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	03 JANUARY 1992	Harrie van Gestel

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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D : document cited in the application
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