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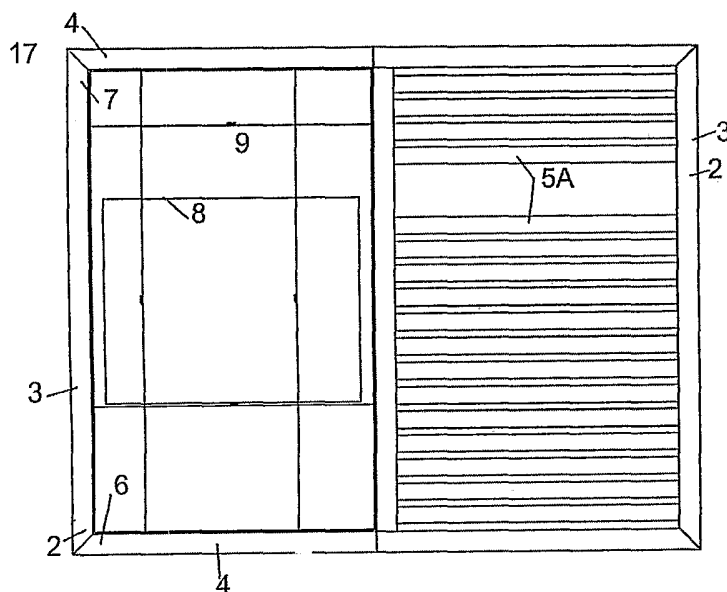
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Published:

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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: HEATING RADIATOR INCORPORATING A TV

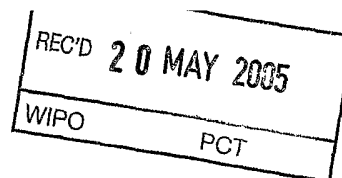


(57) Abstract: A heating radiator (17), particularly for installation in a bathroom such as a hotel bathroom, incorporates a TV (9) or similar media/audio-visual/audio or visual display device with either built in, or separate speakers.

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)



Applicant's or agent's file reference EAL-P/6627.WOP	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/GB2005/000456	International filing date (day/month/year) 10/02/2005	(Earliest) Priority Date (day/month/year) 11/02/2004
Applicant BENN, Alastair		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

HEATING RADIATOR INCORPORATING A TV

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 2

☐ as suggested by the applicant.

☒ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

Title of the Invention

HEATING RADIATOR INCORPORATING A TV

Field of the Invention

This invention relates to a heating radiator/towel rail.

Background of the Invention

The trend to extend image and/or information display systems to bathrooms, particularly hotel bathrooms is indicated by proposals such as PCT/GB02/02944 to inset a TV monitor into a bathroom wall, and EP 1168285 to incorporate a TV monitor into a mirror. Both involve substantial structural work and possibly re-tiling or re-decorating resulting in heavy installation costs and non-availability of the hotel room until completion.

Object of the Invention

A basic object of the invention is the provision of an improved heating radiator/towel rail.

Summary of the Invention

According to the present invention, there is provided a heating radiator or towel rail, particularly for installation in a bathroom such as a hotel bathroom, incorporating a TV or similar media/audio-visual/audio or visual display device with either built in, or separate speakers.

Advantages of the Invention

The heating radiator/towel rail in accordance with the invention permits simple installation eg into an existing bathroom rather than the need for any major building works. However, the radiator/towel rail could equally well be installed in a kitchen or any other room, either residential, commercial or industrial.

Preferred or Optional Features of the Invention

The radiator/towel rail is heatable electrically.

The radiator/towel rail is adapted to be connected to a (water filled) central heating system and hence is of any industry-standard radiator/towel rail length to enable use to be made of existing piping/connections with minimal plumbing work.

The TV or similar device is inset into the radiator/towel rail, such that the TV is flush, or substantially so, with a surface of the radiator/towel rail.

The TV or similar device is surface mounted onto, or into, the radiator/towel rail.

The TV or similar device, is attached to a back box.

Speakers and power supply means are also attached to the back box.

A cable entry/exit hole is provided in the back box.

The back box is of stainless steel or other non-rusting material.

An open front of the back box is closed off by a glass screen.

The engagement of the glass screen and the back box is in a water and vapour sealing manner.

A mirror vision film is located over an inner surface of the glass screen.

A black p.v.c. layer, with an aperture appropriate to the size of the TV screen, is located at the inner surface of the mirror vision film.

The back box is fixed to a frame portion of the radiator/towel rail.

The TV or similar device is remotely controlled.

The TV or similar device is provided with manual buttons/knobs.

The buttons/knobs are remotely mounted.

The TV or similar device is controlled by an external source e.g. computer.

The TV or similar device is controlled by some form of touch sensor.

The radiator/towel rail unit is IP rated to enable it to be moisture resistant or even waterproof.

The radiator/towel rail incorporates a mirror.

The radiator/towel rail utilises the "mirror vision" principle of a two-way mirror covering the screen, looking like a conventional mirror when the media type is switched off, but being viewable through when the media type is switched on.

Drawings

Examples of radiator/towel rail are shown in the accompanying drawing(s), in which:

Figure 1 is a front elevation of a towel rail in accordance with the invention;

Figure 2 is a front elevation of a first embodiment of radiator in accordance with the invention;

Figure 3 is a front elevation of a second embodiment of radiator in accordance with the invention;

Figures 4, 5 and 6 are respectively front, side and plan views of a first embodiment of box to receive the TV components;

Figures 7, 8 and 9 correspond to Figures 4, 5 and 6 but show a second embodiment of box; and

Figure 10 is an exploded view of the array of components of the TV part of the towel rail/radiator in accordance with the invention.

In all embodiments, like components are accorded like reference numerals.

In Figure 1 is shown a towel rail 1 comprising a rectangular frame 2 made up of two vertical tubes 3 and two horizontal tubes 4, preferably of stainless steel, with three transverse heating tubes 5. All the tubes are interconnected so as to permit the flow of hot water of a conventional central heating system, a lower hot water inlet

connection being indicated at 6 and an upper hot water outlet connection being indicated at 7. In a rectangular space defined between the uppermost transverse tube 5 and the upper horizontal tube 4 is an open fronted box 8, as detailed in Figures 4-6. The box 8 is a simple stainless steel fabrication of suitable dimensions.

As illustrated in Figure 10, a conventional LCD TV 9 is fitted to the box 8, whilst the initially open front of the box 8 is closed off by a glass screen 10 behind which is a "mirror vision" film 11, behind which is a black PVC layer 12 with a cut-out viewing window 13 corresponding to the area of the TV 9. As the towel rail in particular is intended for location in a damp environment, suitable waterproof sealants and/or finishes are required to prevent ingress of water vapour, droplets etc into the interior of the box 8, which finishes and seals are known in the industry.

The box 8 also houses speakers 14 and a power supply, whilst a flange 15 of the box 8 is provided with a cable exit hole 16.

Figure 2 illustrates a heating radiator 17, again having a rectangular frame 2, but with multiple vertically arranged heating tubes 5A located at the upper end of the radiator 14, with the TV 9 located beneath the tubes 4. Water inlet and outlet connections are again illustrated at 6 and 7.

Figure 3 illustrates an alternative radiator 17A, in which there are four arrays 18 of multiple, vertically arranged heating tubes 5, with the TV 9 located, in contrast to Figure 2, at the upper end of the radiator.

CLAIMS

1. A heating radiator or towel rail, particularly for installation in a bathroom such as a hotel bathroom, incorporating a TV or similar media/audio-visual/audio or visual display device with either built in, or separate speakers.
2. A heating radiator or towel rail as claimed in Claim 1, wherein the radiator/towel rail is heatable electrically.
3. A heating radiator or towel rail as claimed in Claim 1 or Claim 2, wherein the radiator/towel rail is adapted to be connected to a (water filled) central heating system and hence is of any industry-standard radiator/towel rail length to enable use to be made of existing piping/connections with minimal plumbing work.
4. A heating radiator or towel rail as claimed in any preceding claim, wherein the TV or similar device is inset into the radiator/towel rail, such that the TV is flush, or substantially so, with a surface of the radiator/towel rail.
5. A heating radiator or towel rail as claimed in any one of Claims 1 to 3, wherein the TV or similar device is surface mounted onto, or into, the radiator/towel rail.
6. A heating radiator or towel rail as claimed in any preceding claim, wherein the TV or similar device, is attached to a back box.

7. A heating radiator or towel rail as claimed in Claim 6, wherein speakers and power supply means are also attached to the back box.
8. A heating radiator or towel rail as claimed in Claim 6 or Claim 7, wherein a cable entry/exit hole is provided in the back box.
9. A heating radiator or towel rail as claimed in Claims 6 to 8, wherein the back box is of stainless steel or other non-rusting material.
10. A heating radiator or towel rail as claimed in Claims 6 to 9, wherein an open front of the back box is closed off by a glass screen.
11. A heating radiator or towel rail as claimed in Claims 6 to 10, wherein the engagement of the glass screen and the back box is in a water and vapour sealing manner.
12. A heating radiator or towel rail as claimed in Claims 6 to 11, wherein a mirror vision film is located over an inner surface of the glass screen.
13. A heating radiator or towel rail as claimed in Claim 12, wherein a black p.v.c. layer, with an aperture appropriate to the size of the TV screen, is located at the inner surface of the mirror vision film.
14. A heating radiator or towel rail as claimed in Claims 6 to 13, wherein the back box is fixed to a frame portion of the radiator/towel rail.

15. A heating radiator or towel rail as claimed in any preceding claim, wherein the TV or similar device is remotely controlled.
16. A heating radiator or towel rail as claimed in any one of Claims 1 to 14, wherein the TV or similar device is provided with manual buttons/knobs.
17. A heating radiator or towel rail as claimed in Claim 16, wherein the buttons/knobs are remotely mounted.
18. A heating radiator or towel rail as claimed in any preceding claim, wherein the TV or similar device is controlled by an external source e.g. computer.
19. A heating radiator or towel rail as claimed in any one of Claims 1 to 16, wherein the TV or similar device is controlled by some form of touch sensor.
20. A heating radiator or towel rail as claimed in any preceding claim, wherein the radiator/towel rail unit is IP rated to enable it to be moisture resistant or even waterproof.
21. A heating radiator or towel rail as claimed in any preceding claim, wherein the radiator/towel rail incorporates a mirror.
22. A heating radiator or towel rail as claimed in any preceding claim, wherein the radiator/towel rail utilises the "mirror vision" principle of a two-way mirror covering the

screen, looking like a conventional mirror when the media type is switched off, but being viewable through when the media type is switched on.

23. A heating radiator or towel rail substantially as herein before described with reference to the accompanying drawings.

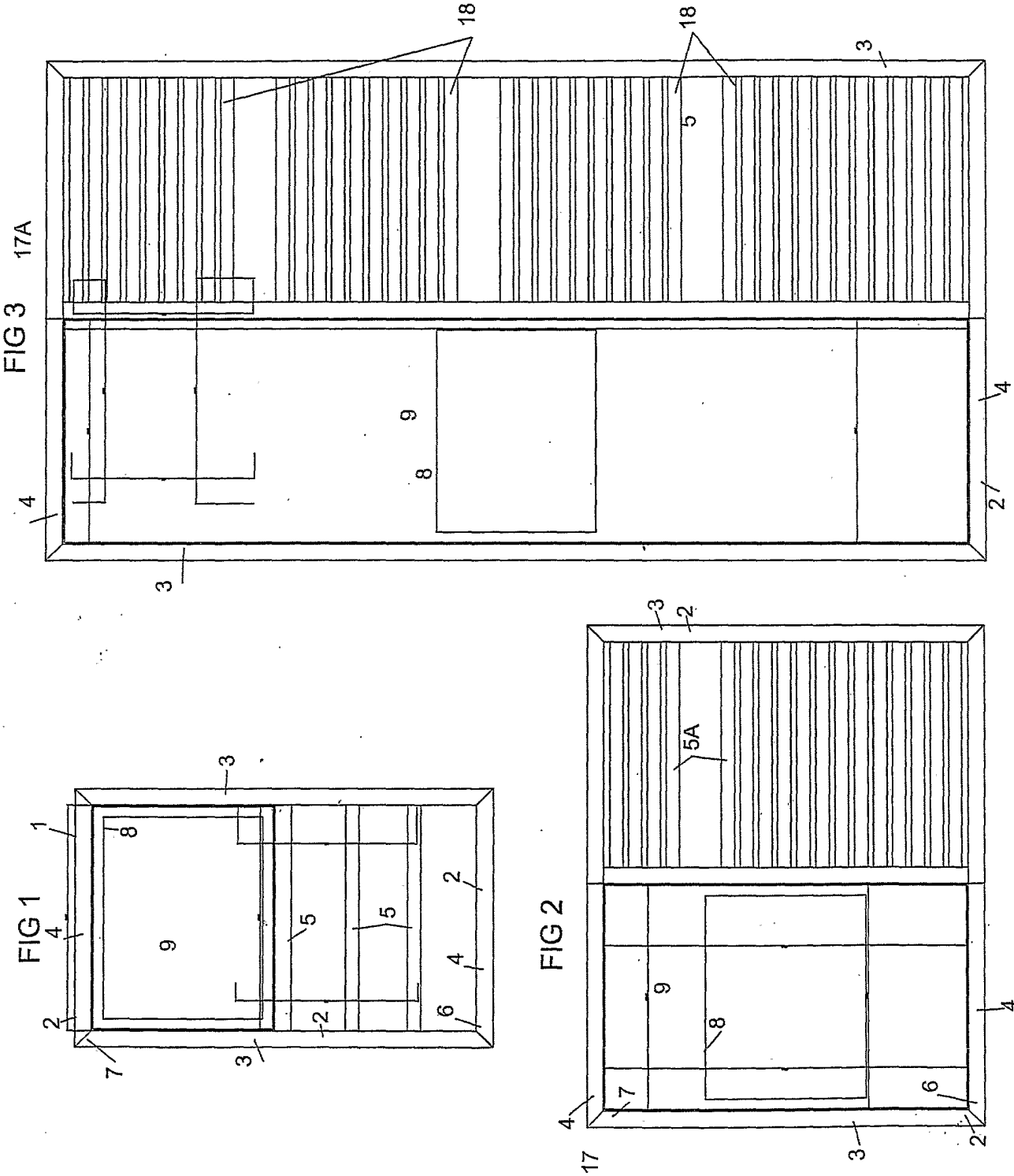


FIG 7

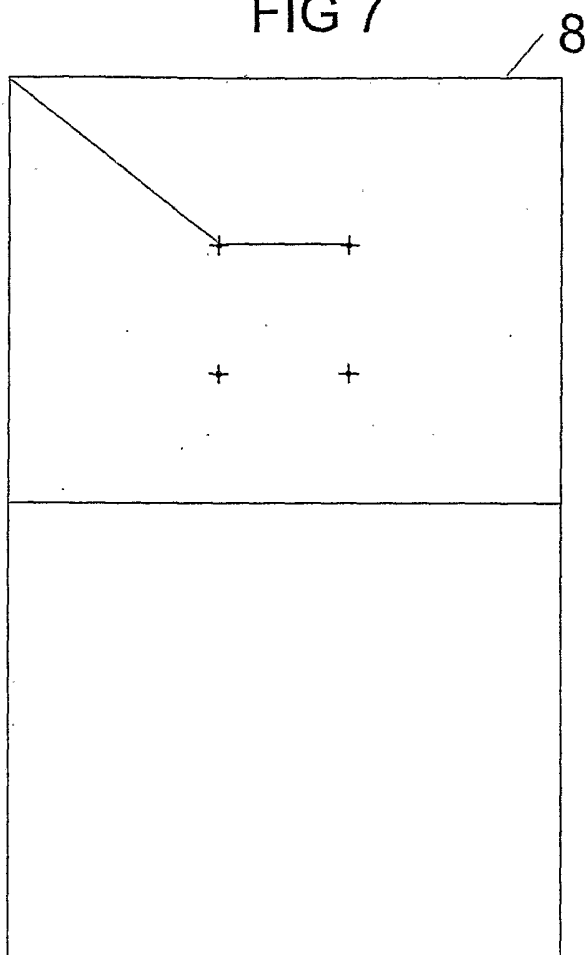


FIG 8

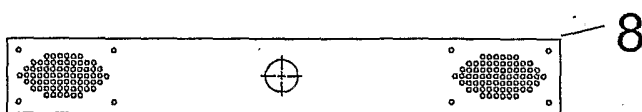
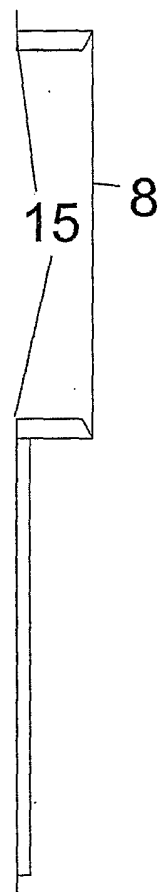


FIG 9

FIG 4

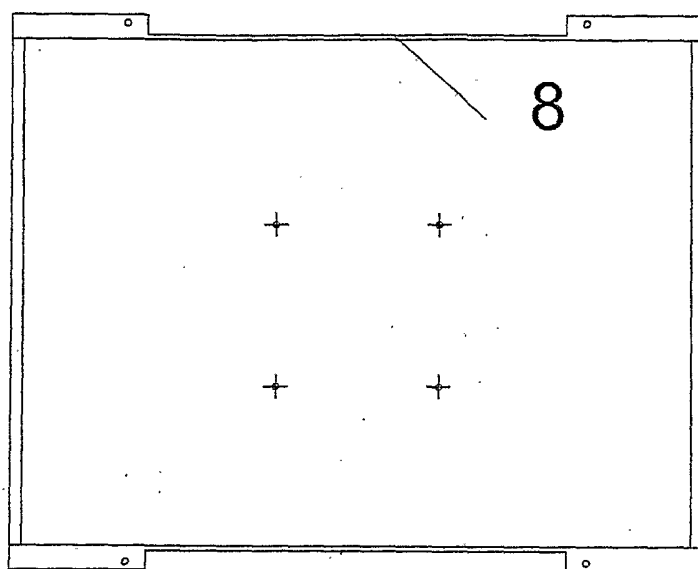


FIG 5

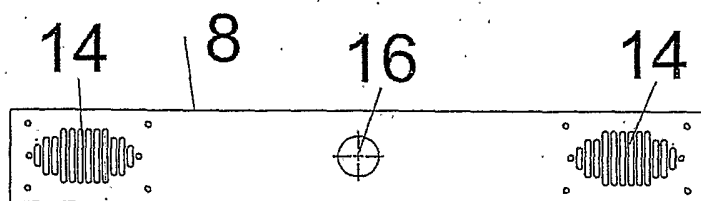
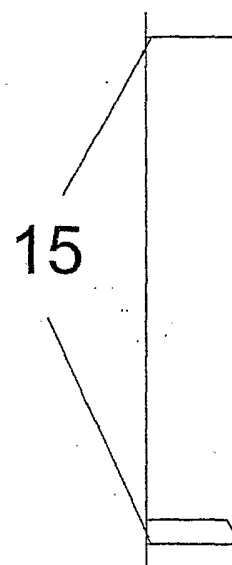
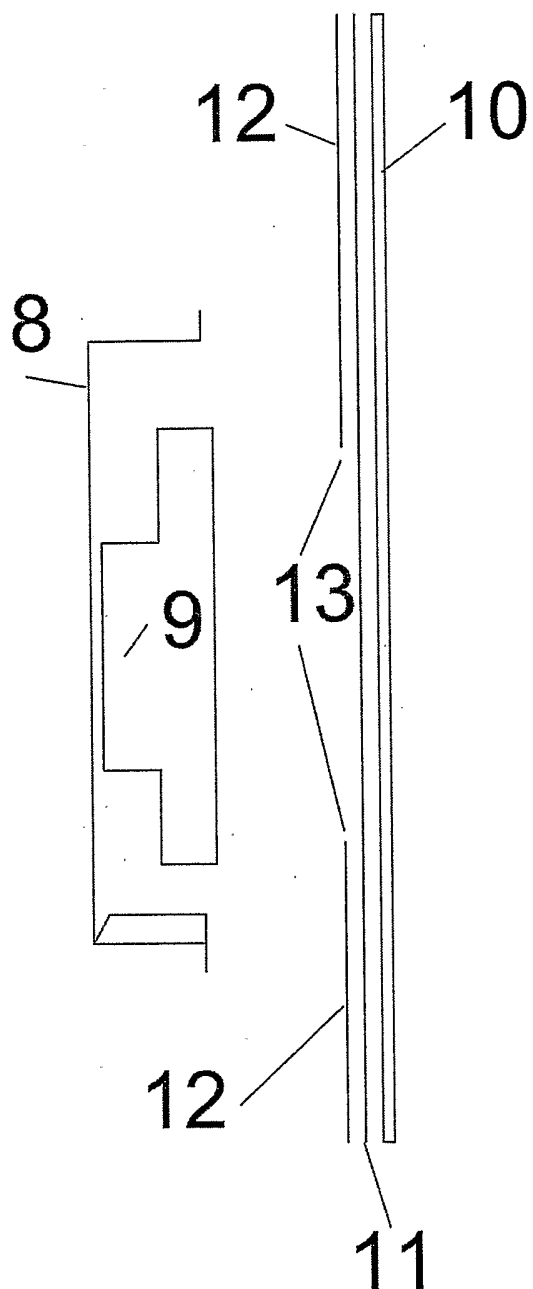


FIG 6

FIG 10



INTERNATIONAL SEARCH REPORT

PCT/GB2005/000456

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47K10/04 A47K10/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47K F24D H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DE 203 20 117 U1 (BENKHARDT, AXEL; HACK, ANDREAS) 8 April 2004 (2004-04-08) paragraphs '0005! - '0009! paragraphs '0035! - '0050!; figures 5-7,14-19	1,2,4-8, 10,11, 16,21
Y	EP 0 366 579 A (R. NUSSBAUM & CIE, S.A) 2 May 1990 (1990-05-02) column 3, lines 8-13; figure 1 ----- -/--	1-8,10, 11, 14-18, 20,21



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

9 May 2005

Date of mailing of the international search report

24/05/2005

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

PCT/GB2005/000456

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/081905 A (REES, IAN, PAUL) 2 October 2003 (2003-10-02) page 1, paragraph 3 - page 3, paragraph 15; figure -----	1,2,4-8, 10,11, 14-17, 20,21
Y	EP 1 292 132 A (REES, IAN PAUL) 12 March 2003 (2003-03-12) column 1, paragraph 4-7 column 2, paragraph 12 column 2, paragraphs 14,15 column 2, paragraph 18; figure -----	1,3-8, 11,15-18
A	US 6 198 073 B1 (GONZALEZ FELIX ABAIGAR) 6 March 2001 (2001-03-06) abstract; figures 1-4 -----	1,3,21
A	GB 2 351 550 A (* BRITISH GAS SERVICES LIMITED) 3 January 2001 (2001-01-03) the whole document -----	1,3

INTERNATIONAL SEARCH REPORT

PCT/GB2005/000456

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 23
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 23

Claim 23 does not contain any clear technical features defining a subject-matter but only refers to the drawings. Thus a reasonable search concerning this claim is not possible.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

PCT/GB2005/000456

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 20320117	U1	08-04-2004	NONE	
EP 0366579	A	02-05-1990	FR 2638225 A1 AT 104710 T CA 2001105 A1 DE 68914778 D1 DE 68914778 T2 EP 0366579 A1 ES 2055806 T3	27-04-1990 15-05-1994 21-04-1990 26-05-1994 07-09-1995 02-05-1990 01-09-1994
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