

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 April 2002 (11.04.2002)

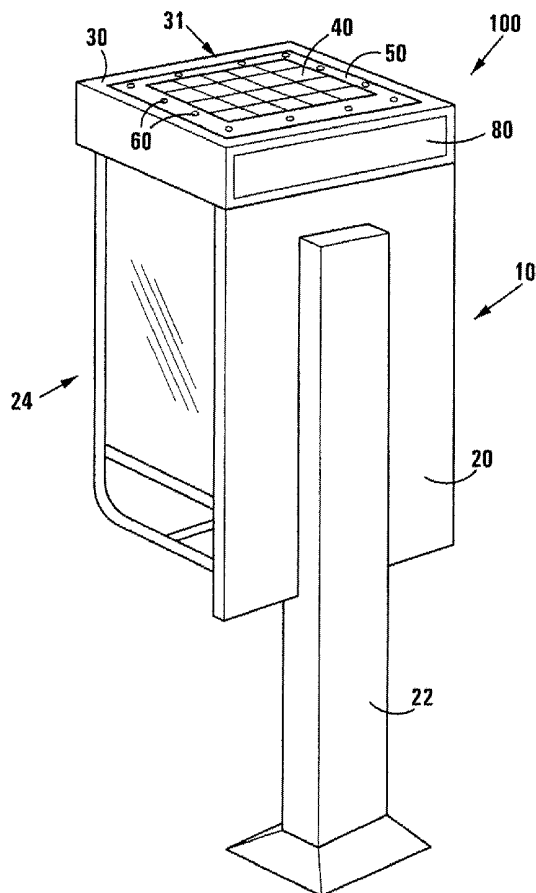
PCT

(10) International Publication Number
WO 02/29181 A1

- (51) International Patent Classification⁷: **E04H 1/14**
- (21) International Application Number: PCT/IB01/01804
- (22) International Filing Date: 2 October 2001 (02.10.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2000/5408 4 October 2000 (04.10.2000) ZA
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A BOOTH FOR A TELECOMMUNICATION UNIT



(57) Abstract: This invention relates to a telephone booth assembly which includes a booth for housing a telecommunication unit and a user of the unit, and a solar panel mounted on the booth, the solar panel being permanently attached to the upper surface of the roof of the booth such that removal of the panel from the roof will cause damage to, or destruction of, the solar panel. Preferably, the panel is adhesively secured to the booth by means of a chemical adhesive provided between the panel and the upper surface of the roof of the booth. The invention extends a method of attaching the solar panel to the booth, the method including the step of permanently attaching the solar panel to the upper surface of a roof of the booth such that removal of the panel from the roof will cause damage to the panel.



WO 02/29181 A1

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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

A BOOTH FOR A TELECOMMUNICATION UNIT

5 **THIS invention** relates to a booth for a telecommunication unit. In particular, it relates to a telephone booth assembly and to a method of attaching a solar panel to a booth for a telecommunication unit.

 According to a first aspect of the invention, there is provided a
10 telephone booth assembly which includes:

 a booth for housing a telecommunication unit and a user of the unit; and
 a solar panel mounted on the booth, the solar panel being permanently attached to the upper surface a roof of the booth such that removal of the panel from the roof will cause damage to, or destruction of, the solar panel.

15 In a particular embodiment of the invention, the solar panel is adhesively secured to the upper surface of the roof of the booth by means of a chemical adhesive provided between the panel and the upper surface of the roof of the booth.

20 The solar panel may be received in a complementary depression formed therefor in the upper surface of the roof. The upper surface of the panel may be flush with or below the level of the portions of the upper surface of the roof immediately bordering the panel along the periphery of the depression, the

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25 assembly including a cover member which is attached to the roof and which, at least partially, covers the upper surface of the panel and at least partially covers the upper surface of the roof along the periphery of the depression.

30 Typically, the assembly includes a telecommunication unit. In a particular embodiment of the invention, the telecommunication unit forms part of an essentially wireless communication network.

35 The inclination of the roof relative the horizontal may be adjustable, allowing the inclination of the roof to be selectively varied in order to achieve maximum exposure of the panel to solar radiation for a geographic latitude at which the booth is to operate.

40 The assembly may include a lighting unit which is electrically connected to the solar panel, the lighting unit including a plurality of light-emitting diodes.

45 According to a second aspect of the invention, there is provided a method of attaching a solar panel to a booth for a telecommunication unit, the method including the step of permanently attaching the solar panel to the upper surface of a roof of the booth such that removal of the panel from the roof will cause damage to, or destruction of, the solar panel.

50 Preferably, permanently attaching the panel to the upper surface is by adhesively securing it thereto.

The step of attaching the solar panel to the upper surface of the roof may include snugly receiving the solar panel in a complementary walled depression
55 defined in the roof such that the periphery of the panel abuts or is closely spaced, with no more than a working clearance, from peripheral walls of the depression.

The method may include the step of attaching a cover member to the upper surface of the roof such that it at least partially covers the periphery of the
60 solar panel and at least partially covers part of the roof bordering said periphery.

The invention will now be further described by way of example with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a three-dimensional view of a telephone booth assembly in
65 accordance with the invention;

Figure 2 is a sectional side view of a roof of the assembly of Figure 1, taken at II-II in Figure 4;

Figure 3 is an exploded, enlarged scale detail of part of the roof of the assembly shown in Figure 2;

70 Figure 4 is a plan view of the booth of Figure 1; and

Figure 5 is a three-dimensional view of a lighting unit forming part of the assembly of Figure 1.

In Figure 1, reference numeral 100 refers generally to a telephone booth assembly in accordance with the invention. The assembly includes a booth 10 for housing a telecommunication unit and a user thereof (not shown). In the present example, the telecommunication unit is a telephone unit (not shown) which forms part of an essentially wireless communication network such as a cellular- (GSM or Analogue), satellite- or wireless telephone network (not shown).

The assembly 100 further includes a solar panel 40 which is attached to a housing structure 20 of the booth 10. The solar panel 40 includes a plurality of photo-voltaic cells for converting energy in the form of solar radiation into electrical energy in a known manner. The housing structure 20 includes an operatively vertical supporting post 22, and defines an enclosure 24 for accommodating the user of the booth 10.

As can best be seen from Figures 2 to 4, the structure 20 further includes a roof 30 defining the upper boundary of the enclosure 24, the roof 30 being orientated at a predetermined angle to the post 22, and hence, in use, being inclined at a predetermined angle Θ to the horizontal. The panel 40 is located in a depression 32 formed in the upper surface 31 of the roof 30, the depression 32 being complementary in shape and in dimension to the panel 40, so that the panel 40 fits snugly in the depression 32, the periphery 44 of the panel 40 being closely spaced from peripheral walls 36 enclosing the depression 32. The panel 40 is received in the depression 32 such that an upper surface 42 of the panel 40 is

flush with the upper surface 34 of the portions of the roof which immediately border the depression 32, and therefore in use immediately border the periphery of the panel 40, these portions providing a shallow hollow 33 that extends peripherally around the depression 32.

A chemical adhesive in the form of silicone (not shown) is provided on the interface of the depression 32 and the panel 40, so that the panel 40 is permanently attached to the roof 30, and any attempted removal of the panel 40 from the depression 32 will cause damage to, or destruction of, the panel 40.

The booth further includes a cover member 50 in the form of a planar frame which is shaped to fit into the peripheral hollow 33, the cover member 50 having a central aperture 52 for allowing solar radiation to pass on to the panel 40. The cover member 50 is attached to the roof 30 by a plurality of screws 60 (shown in Figure 4) which pass through holes (not shown) in the cover member 50 and are received in complementary screw-threaded cavities 38 in the roof 30. In this position, the cover member 50 covers a periphery 44 of the solar panel 40 as well as the upper surface 34 of the peripheral hollow 33.

The solar panel 40 is electrically connected to an energy storage means in the form of a battery of electrochemical cells (not shown), which is housed in the post 22. The battery is in turn connected to the telephone unit. The battery is also electrically connected to a lighting unit 70 (shown in Figure 5) which

forms part of the booth 10. The lighting unit 70 includes a mounting plate 72 for mounting the unit 70 on the operatively lower side of the roof 30. A purpose-made, spun aluminium reflector 74 depends from the plate 72 and houses a number of light-emitting diodes (LED's, not shown) for use in lighting the enclosure 24. A trough reflector 76 which is made from high purity, anodised and brightened aluminium, is also attached to the plate 72 and houses a number of linearly spaced LED's (not shown). The trough reflector 76, in use, provides back lighting for a sign 80 on the booth 10, the sign 80 being visible from an outside of the booth 10.

In use, the angle Θ is chosen to provide optimal exposure of the solar panel 40 to solar radiation, taking into account the geographic latitude at which the booth 10 is to operate. Once erected, the solar panel 40 converts the solar radiation to which it is exposed into electrical energy, which is stored by the cells of the battery. When the telephone is used, the battery provides the telephone and lighting units with the required amount of electrical power.

Although not shown, the roof 30 may be connected to the structure 20 such that the roof 30 is selectively pivotally displaceable relative to the structure 20, so that angle Θ can be selectively varied, to enable like booths 10 to be used at locations of varied geographic latitude, angle Θ of the roof 30 of each booth 10 relative to the horizontal having been adjusted to be at an optimal inclination for the specific latitude at which that booth 10 is located.

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It is an advantage of the invention as illustrated with reference to the accompanying drawings that removal of the solar panel 40 without causing considerable damage thereto is inhibited by the permanent attachment of the panel 40 to the booth 10. A prospective thief not only has to remove the cover member 50, but removal of the solar panel 40 is inhibited by the fact that it is adhered to the roof 30, fitting snugly into the depression 32 and being flush with the upper surface 34 of the peripheral hollow 33.

CLAIMS:

1. A telephone booth assembly which includes:

a booth for housing a telecommunication unit and a user of the unit; and

a solar panel mounted on the booth, the solar panel being permanently attached to the upper surface a roof of the booth such that removal of the panel from the roof will cause damage to, or destruction of, the solar panel.

2. An assembly as claimed in claim 1, in which the panel is adhesively secured to the upper surface of the roof of the booth by means of a chemical adhesive provided between the panel and the upper surface of the roof of the booth.

3. An assembly as claimed in claim 1 or claim 2, in which the solar panel is received in a complementary depression formed therefor in the upper surface of the roof.

4. An assembly as claimed in claim 3, in which the upper surface of the panel is flush with or below the level of the portions of the upper surface of the roof immediately bordering the panel along the periphery of the depression, the assembly including a cover member which is attached to the roof and which, at least partially, covers the upper surface of the panel and at least partially covers the upper surface of the roof along the periphery of the depression.

5. An assembly as claimed in any one of the preceding claims, which
180 includes a telecommunication unit.

6. An assembly as claimed in claim 5, in which the unit forms part of an
essentially wireless communication network.

185 7. An assembly as claimed in any one of the preceding claims, in which
the inclination of the roof relative the horizontal is adjustable.

8. An assembly as claimed in any one of the preceding claims, which
includes a lighting unit which is electrically connected to the solar panel, the
190 lighting unit including a plurality of light-emitting diodes.

9. A method of attaching a solar panel to a booth for a
telecommunication unit, the method including the step of permanently attaching the
solar panel to the upper surface of a roof of the booth such that removal of the
195 panel from the roof will cause damage to, or destruction of, the solar panel.

10. A method as claimed in claim 9, in which permanently attaching the
panel to the upper surface is by adhesively securing it thereto.

200 11. A method as claimed in claim 9 or claim 10, in which the step of
attaching the solar panel to the upper surface of the roof includes snugly receiving

the solar panel in a complementary walled depression defined in the roof such that the periphery of the panel abuts or is closely spaced, with no more than a working clearance, from peripheral walls of the depression.

12. A method as claimed in claim 9 or claim 10, which includes the step of attaching a cover member to the upper surface of the roof such that it at least partially covers the periphery of the solar panel and at least partially covers part of the roof bordering said periphery.

13. An assembly as claimed in claim 9, substantially as herein described and illustrated.

14. A method as claimed in claim 9, substantially as herein described and illustrated.

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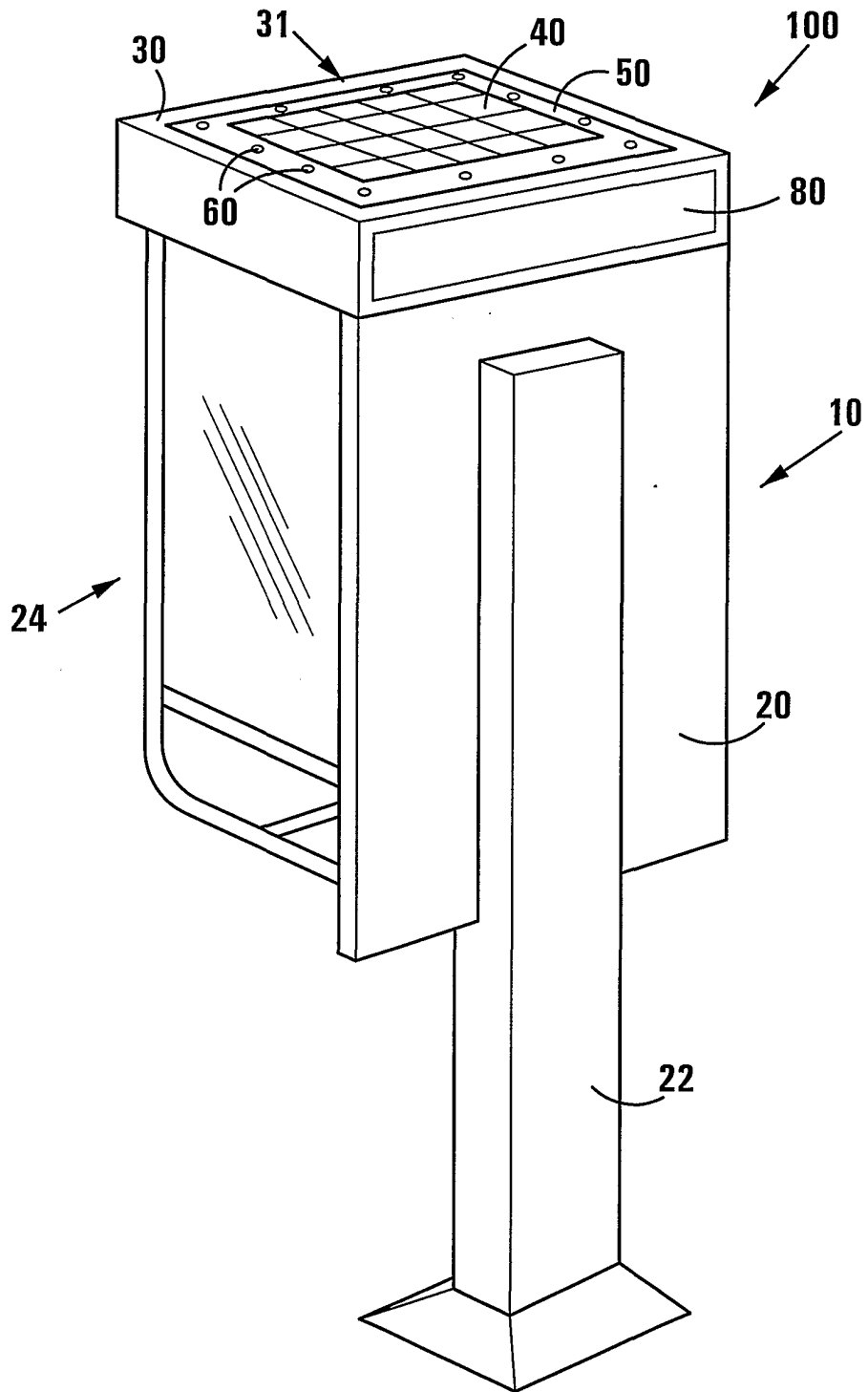


FIG 1

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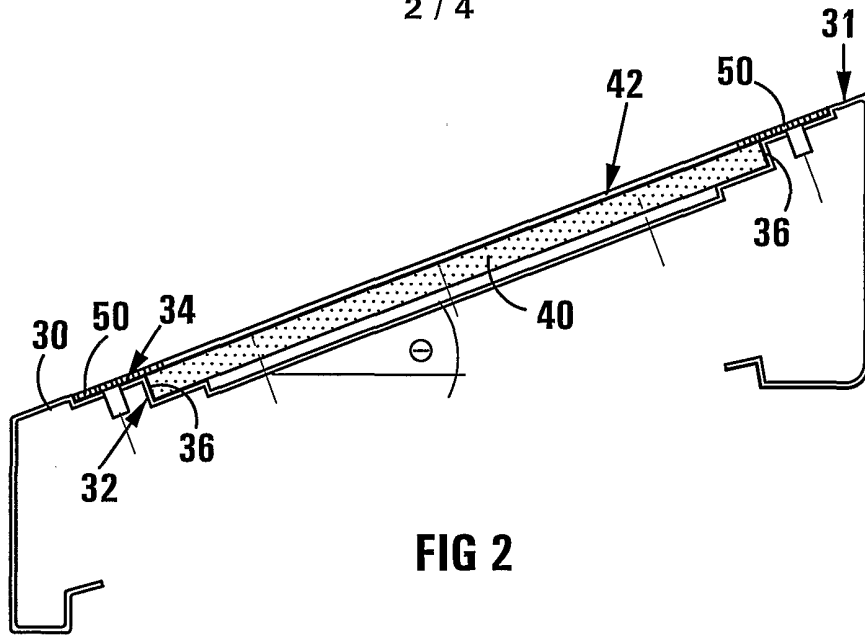


FIG 2

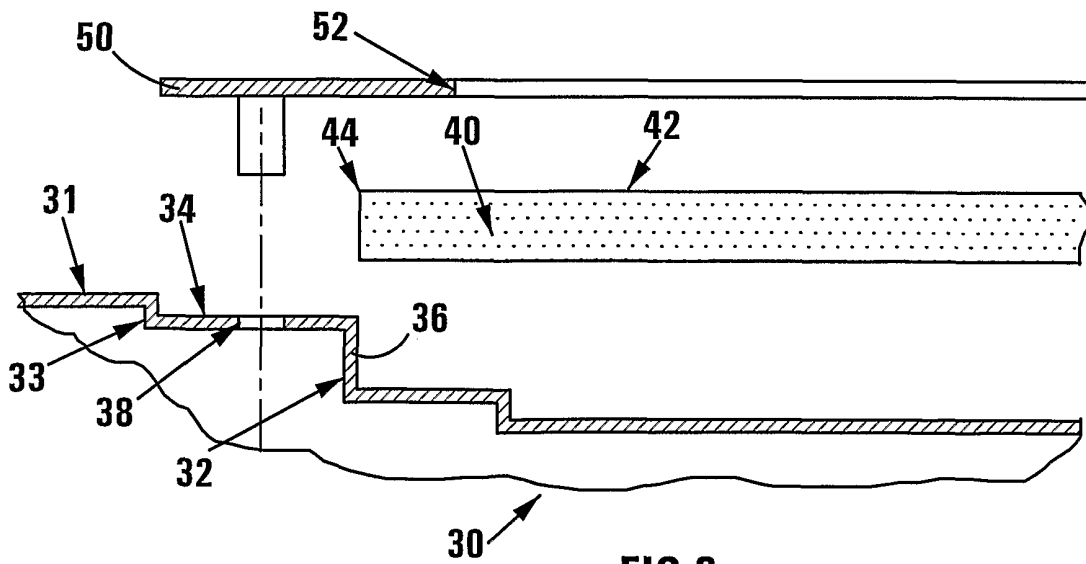


FIG 3

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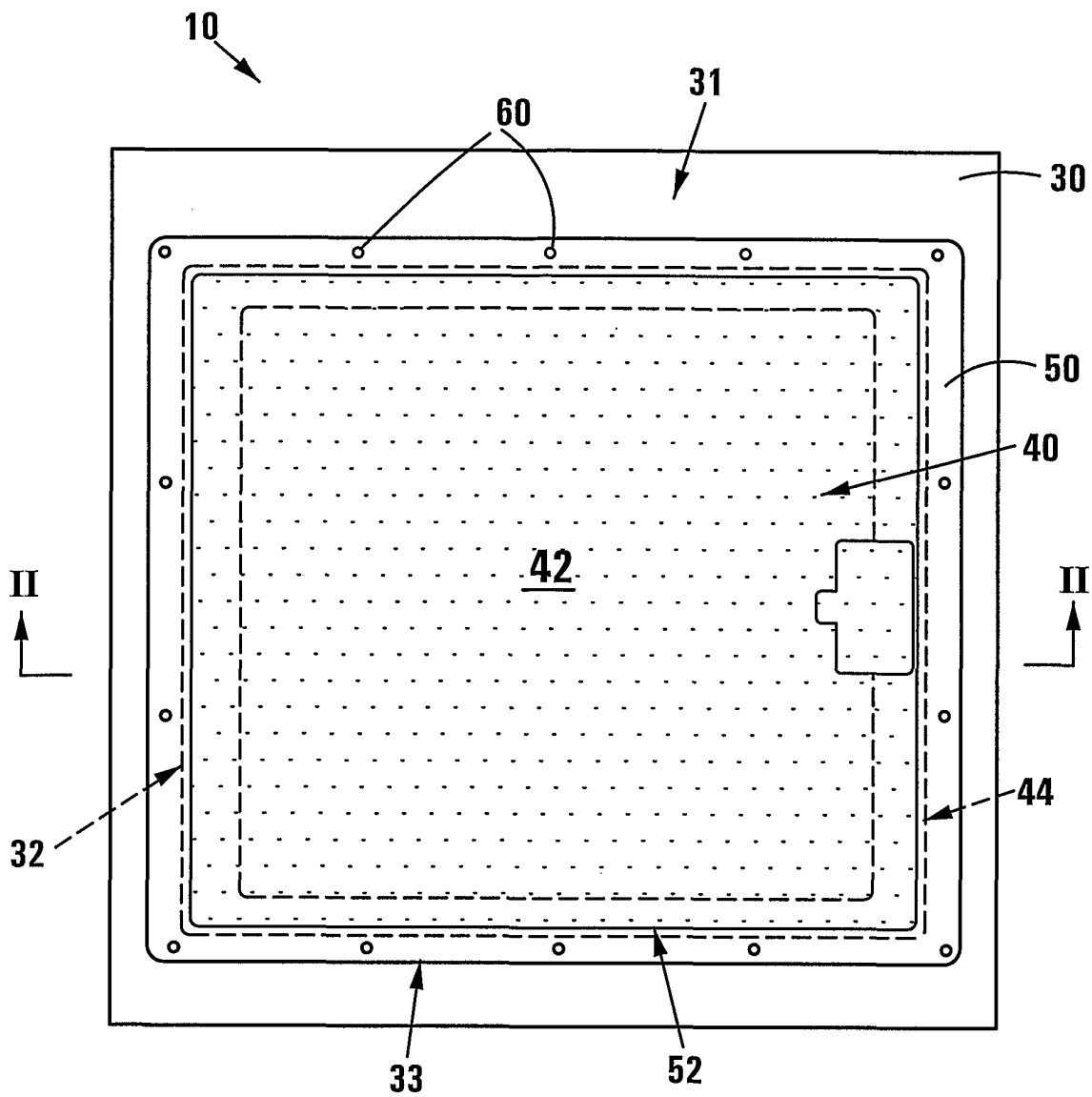


FIG 4

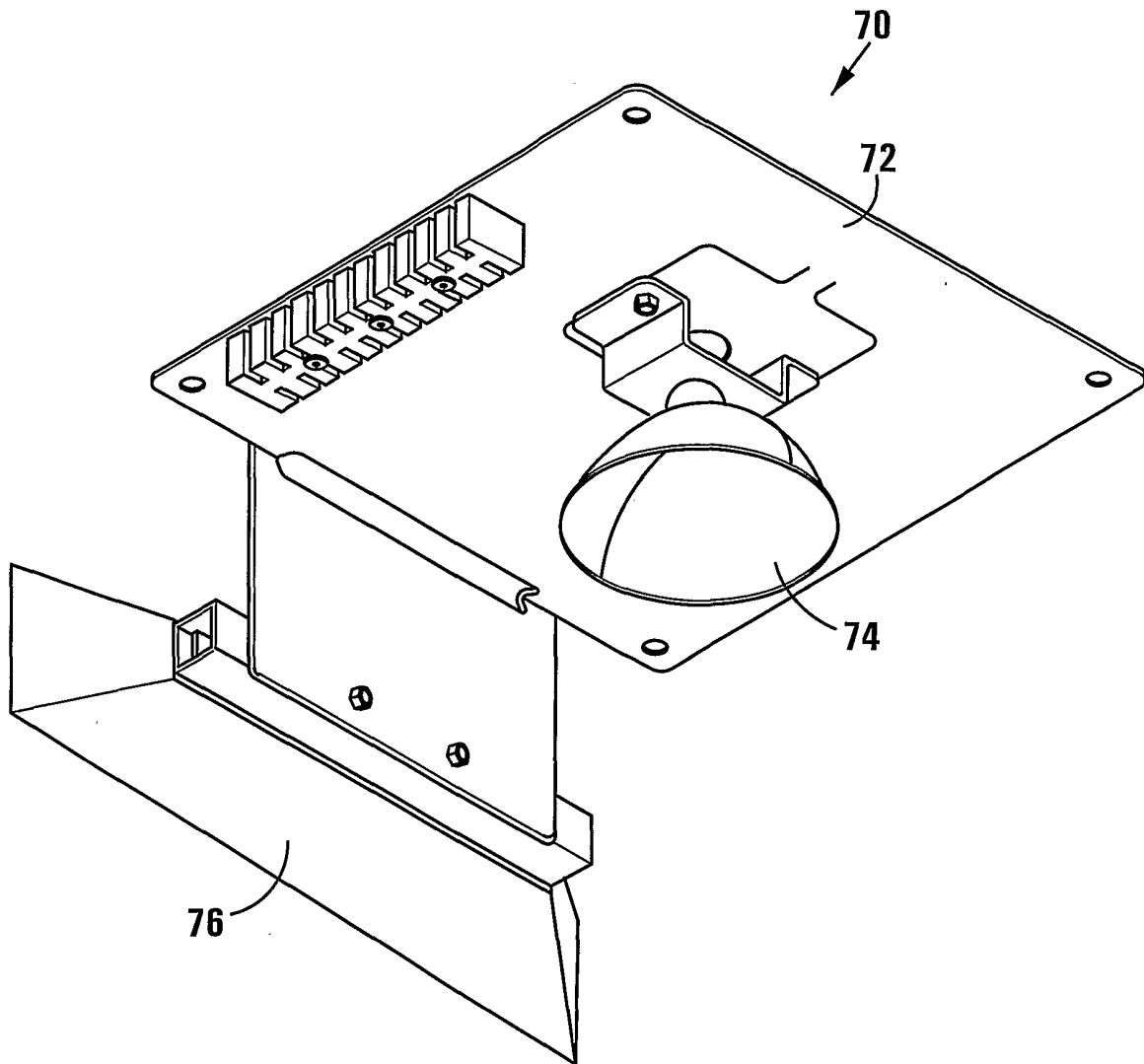


FIG 5

INTERNATIONAL SEARCH REPORT

Inter	Application No
PCT/IB	01/01804

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 E04H1/14

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 E04H

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 441 143 A (RICHARDSON JR CHARLES T) 3 April 1984 (1984-04-03) column 3, line 4 -column 4, line 27; figure 1	1,5,6,8, 9
Y	----	3,7
X	DE 196 37 436 A (SIEMENS AG) 26 March 1998 (1998-03-26) the whole document	1,5,6,9
Y	----	
Y	US 5 221 891 A (JANDA RUDOLPH W ET AL) 22 June 1993 (1993-06-22) column 2, line 51 - line 68; figure 1	3
Y	ES 2 105 966 A (TELEFONICA NACIONAL ESPANA CO) 16 October 1997 (1997-10-16) column 5, line 15 - line 21; figure 2	7
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *A* document defining the general state of the art which is not considered to be of particular relevance
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- *&* document member of the same patent family

Date of the actual completion of the international search

8 March 2002

Date of mailing of the international search report

18/03/2002

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INTERNATIONAL SEARCH REPORT

Interr	Application No
PCT/IB 01/01804	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 5 367 442 A (SEEGAN KIMBERLY E ET AL) 22 November 1994 (1994-11-22) column 5, line 1 -column 6, line 24 column 8, line 39 -column 9, line 35; figures 1-4,11-15 -----</p>	<p>3,4,11, 12</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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