



(51) International Patent Classification:

E04H 9/04 (2006.01) *E04B 5/12* (2006.01)
E04H 9/06 (2006.01) *F41H 5/013* (2006.01)
E04H 9/10 (2006.01) *E04C 2/08* (2006.01)
E04B 1/98 (2006.01) *E04B 1/61* (2006.01)

(21) International Application Number:

PCT/GB2012/050465

(22) International Filing Date:

1 March 2012 (01.03.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1103948.4 8 March 2011 (08.03.2011) GB

(71) Applicant (for all designated States except US): **BASTION SECURITY INSTALLATIONS LTD** [GB/GB];
16E Follingsby Park, Follingsby Park, Gateshead, Tyne and Wear (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **DEEVY, Thomas** [GB/GB]; c/o Bastion Security (North) Ltd, 16 E Follingsby Close, Follingsby Park, Gateshead, Tyne and Wear (GB).

(74) Agent: **GILL JENNINGS & EVERY LLP**; The Broadgate Tower, 20 Primrose Street, London EC2A 2ES (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: MODULAR SECURITY WALLING

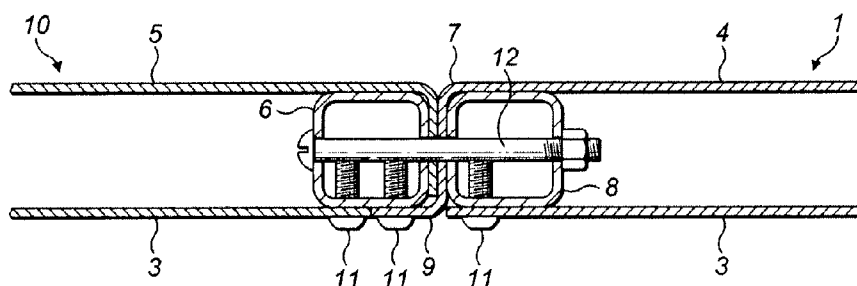


FIG. 1

(57) Abstract: A panel, comprising: a rectangular box frame structure formed of four box members; a first plate that is arranged to completely cover a first side of the box frame structure and wrap around at least part of an outer edge of each box member; and a second plate that is arranged to cover a second, opposite side of the box frame structure, herein a side of the first plate is further arranged to form a flange that extends away from the panel in a substantially perpendicular direction on the second side of the box frame structure such that the flange can be secured, in use, to a box member of an adjoining panel.

Modular Security Walling

The present invention relates to security enclosures, and in particular to modular panels, or walls, that can be arranged to construct a standalone security partition or enclosure.

Existing panel arrangements cannot be quickly and easily assembled at short notice to provide a temporary security enclosure because of the need to first construct the frames required to secure the panels in place and also the need to secure the frames. Furthermore, a problem with typical panel arrangements that comprise two or more adjoining panels is that the interface between adjoining panels can provide a weak point, through which projectiles might pass, or into which tools can be inserted to try and prise the panels apart.

It is therefore desirable to provide a partition that can provide a high level of security whilst being quick and easy to assemble and disassemble.

According to the present invention there is provided a panel, comprising a rectangular box frame structure formed of four box members; a first plate that is arranged to completely cover a first side of the box frame structure and wrap around at least part of an outer edge of each box member; and a second plate that is arranged to cover a second, opposite side of the box frame structure, wherein a side of the first plate is further arranged to form a flange that extends away from the panel in a substantially perpendicular direction on the second side of the box frame structure such that the flange can be secured, in use, to a box member of an adjoining panel.

According to the present invention there is also provided a wall, comprising two or more adjoining panels as described above, wherein the flange of a first panel is secured to a box member of the second panel.

The present invention provides a modular panel arrangement which can be used to form interlinking walling for a security partition or enclosure that does not require a frame to secure each panel in place.

The modular nature of the present invention allows the panels to have many applications, for example they can be used to line a room, provide a partition or construct a standalone structure either externally, or in a room or space provided within an existing structure.

If the panels are used to form the walls of a security enclosure, a door can be provided to allow secure access to the enclosure and a roof panel and, preferably, also a floor panel can be provided.

5 If being used externally, the joints between the modular panels can be weather-proofed to prevent fluids from penetrating through the walling.

If security is not a concern, aluminium panels can be used to provide a relatively light and convenient partition or enclosure. Increasingly heavy-duty walling can alternatively be used for higher security applications.

10 The modular panels can also be used in an telescopic arrangement whereby a secure space can be temporarily created by making a portion of walling retractably extendable, using wheels for example.

Advantageously, a security wall or enclosure can be quickly and easily assemble and dissembled using the modular panels to provide a temporary security enclosure, if required.

15 Furthermore, a number of different configurations to cover varying floor-space, with varying footprints, are possible simply by changing the number of panels used. The floor and roof can be panels can be produced in different sizes to fit the different configurations.

20 In addition, the security door can be provided with a flange on the hinge side, which prevents it from being pulled out of the door frame should the hinges be disabled.

An example of the present invention will now be described, with reference to the accompanying figures, in which:

25 Figure 1 shows a sectional plan view of an interface between two modular wall panels joined together according to the present invention;

Figure 2 shows a sectional cross section of an interface between a roof panel and a wall panel joined together according to the present invention;

30 Figure 3 shows a sectional plan view of interfaces between a corner section joining two modular wall panels together according to the present invention; and

Figure 4 shows a sectional plan view of a hinge edge of a security door having a flange portion according to the present invention.

The present invention comprises two or more modular walling panels 1 that can be arranged to form a secure partition or enclosure. Each modular walling panel 1 has a box frame structure, or similar, comprising a plurality of box frame members 2 arranged to provide a frame to which an internal plate 3 and an external plate 4 are secured. The external plate 4 is, preferably, permanently secured to the box frame structure using a suitable welding technique.

The external plate 4 is arranged such that it completely covers the area defined by the box frame structure. Furthermore, a first vertical edge 5 of the external panel 4 is bent around a first vertical box frame member 6, and a second vertical edge 7 of the external plate 4, which is opposite and parallel to the first vertical edge 5, is bent around a second, opposite vertical box frame member 8. The second vertical edge 7 is further arranged to extend just past the second vertical box frame member 8 before bending out and away from the second vertical box frame member 8 in a substantially perpendicular direction to form a flange 9 having a width that is, preferably, equal to half the width of a box frame member 2, so that the flange 9 can be secured to an internal side of a first box frame member 6 of a box frame structure an adjacent walling panel 10 using screw means 11, or similar. Further securing means 12, such as cross bolts, or similar, can then be passed through the adjoining first 6 and second 8 vertical box frame members of adjoining second 10 and first 1 walling panels, respectively, at various positions, to secure the adjacent walling panels 1, 10 together.

Once the first and second panels are secured together, the internal plate 3 can be secured to the first 6 and second 8 vertical box frame members of each panel 1, 10, the internal plate 3 being a flat plate arranged to extend between the edge of the flange 9 (of the external plate 4 of the adjoining panel 1) that is secured to the first vertical box frame member 6 to the outer edge of the second vertical box frame member 8. In other words, the internal plate 3 should extend from the outer edge of the second vertical box frame member 8 to roughly halfway across the first vertical box frame member 6.

Figure 3 shows a sectional plan view of a corner section 15, which can be used to join substantially perpendicular wall panels 1, 10 together to form a

rectangular enclosure, although it will be appreciated that the angle of the corner section 15 can be configured provide an enclosure of any regular shape. An internal plate 13 is arranged to form a corner of the enclosure and is secured between vertical box frame members 8, 6 of the wall panels 1, 10. Similar to the external plates 4 of each walling panel 1, 10, the external plate 14 of the corner section 15 is arranged to be bent to form flanges 16, at its extremities, such that the external plate 14 can be secured to the vertical box frame members 8, 6 of the wall panels 1, 10. The internal plate 13 is, preferably, secured to the vertical box frame members 6, 8 at the same time using suitable screw means 11, or similar.

Similar to the wall panels 1, 10, the corner section 15 may have a frame comprising box frame members 17 and securing means 12, such as cross bolts, or similar, can be passed through a box frame member 8, 6 of the adjoining wall panels 1, 10, ideally before the internal panel 3 is secured, and into an adjoining box frame member 17 of the corner section 15 to secure the panel 1, 10 to the corner section 15. In the example shown, the external plate 14 of the corner section 15 is arranged to have a chamfered corner as a safety feature, although this is not essential.

If the wall panels 1, 10 are used to provide an enclosure, a roof panel 18 may also be provided. Figure 2 shows an example of an interface between a roof panel 18 and a wall panel 1. It can be seen that the external plate 4 of the wall panel 1 wraps around a least a portion of the upper horizontal box frame member 19. Although not shown here, the external plate 4 also wraps around at least a portion of the lower horizontal box member (not shown).

The roof panel 18 also has a rectangular box frame structure to which an external plate 20 is permanently secured, similar to the wall panels 1, 10. The box frame 21 of the roof panel 18 is, preferably, configured to just fit inside the walls 1, 10 that define the enclosure. The external plate 20 extends out from the box frame 21 slightly in each direction to form an outer rim that extends sufficiently to lie flush with the external plate 4 of the wall panel 1, 10, thereby resting on top of the upper box frame member 19.

The external plate 20 of the roof panel 18 also has an internal flange 22 that can be secured to an inner edge of the upper horizontal box member 19 of

each wall panel 1, 10, using suitable screw means 11, or similar. Once the roof panel flange 22 is secured to each of the upper horizontal box members 19 of the wall panels 1, 10, an internal plate 23 can be secured to the roof box frame structure 21 to form a ceiling inside the enclosure.

5 As can also be seen in figure 2, the internal plates 3 of each wall panel 1, 10, preferably, extend from the upper edge of the upper horizontal box frame member 19 of each panel 1, 10 down to just above the inner edge of the lower horizontal box frame member (not shown) of the wall panel 1, 10 so that, if required, a floor (not shown) comprising a similar box frame members 2 can be
10 installed. The floor box frame can then be secured to the lower vertical box member of each wall panel using screw means, or similar, before a floor plate (not shown) is fitted and secured to the floor box frame to provide a close fit with the internal plates 3, 13 of the wall panels 1, 10 and corner sections 15.

 An enclosure may also be provided with a door 24 to control access to
15 the enclosure. As can be seen in figure 4, similar to the wall panels 1, 10, the door 24 can comprise a rectangular box frame structure having an external plate 25 permanently fixed to it. On the side of the door 24 where a hinge 27 is provided, the external plate 25 bends around a vertical box frame member 26 of the box frame structure and extends inwardly, past the box frame member 26
20 and hinge 27 before extending away from the side of the door 24 substantially perpendicularly to form a flange 28, which is configured such that, in the event that the hinge 27 is disabled while the door 24 is secured closed, the flange 28 will prevent the door 24 from being pulled out of its frame, created by adjoining wall panels 1, 10. The flange 28 is, of course, not secured to the vertical box
25 frame member 8 of the adjoining wall panel 10 so that, when the door 24 is opened, the flange 28 can rotate about the hinge 27 with the door 24.

 The door also has an internal plate 29 which is, ideally, similar to internal wall 3 of the wall panels 1, 10 in that it comprises a flat plate that extends between vertical box frame members 26 that form the frame structure for the
30 door 24.

 Depending on the strength required, the internal and external plates of the wall, roof, floor and door panels may be made of reinforced or strengthened

materials, such as hardened steel, or of more lightweight materials such as aluminium if strength is not a major concern.

The flanges 9 of the external plates 4 of the wall panels 1, 10 and the internal plates 3 are, preferably, secured to the box frame structure of adjacent panels by screw fasteners into tapped holes provided in the vertical box frame members 6, 8. To weatherproof the enclosure to prevent the ingress of fluids, a compressible strip of foam-like material (not shown) can be inserted into the interfaces between adjoining wall panels 1, 10 in such a way that when adjacent panels are secured together, the foam-like material is compressed and hence prevents the any fluids from penetrating it.

CLAIMS

1. A panel, comprising:
 - a rectangular box frame structure formed of four box members;
 - 5 a first plate that is arranged to completely cover a first side of the box frame structure and wrap around at least part of an outer edge of each box member; and
 - a second plate that is arranged to cover a second, opposite side of the box frame structure,
 - 10 wherein a side of the first plate is further arranged to form a flange that extends away from the panel in a substantially perpendicular direction on the second side of the box frame structure such that the flange can be secured, in use, to a box member of an adjoining panel.
- 15 2. A wall, comprising two or more adjoining panels according to claim 1, wherein the flange of a first panel is secured to a box member of the second panel.
3. A security door, comprising a flange on the hinge side to prevent the door
20 from being pulled out of its frame should the hinge be disabled.
4. A security enclosure, comprising a plurality of wall panels according to claim 1 and a security door according to claim 3.

1 / 3

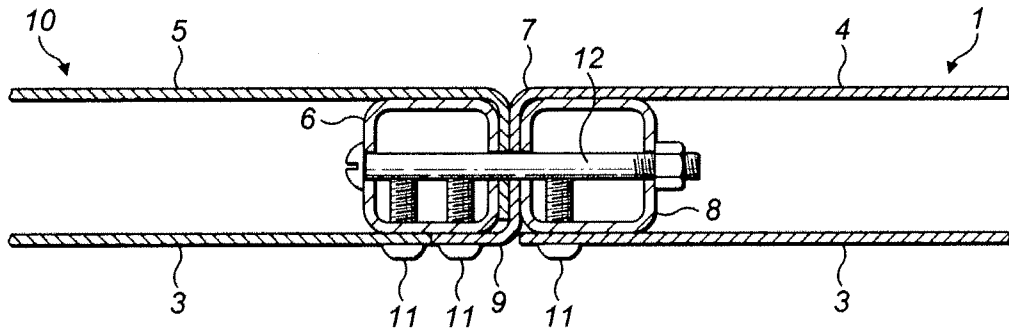


FIG. 1

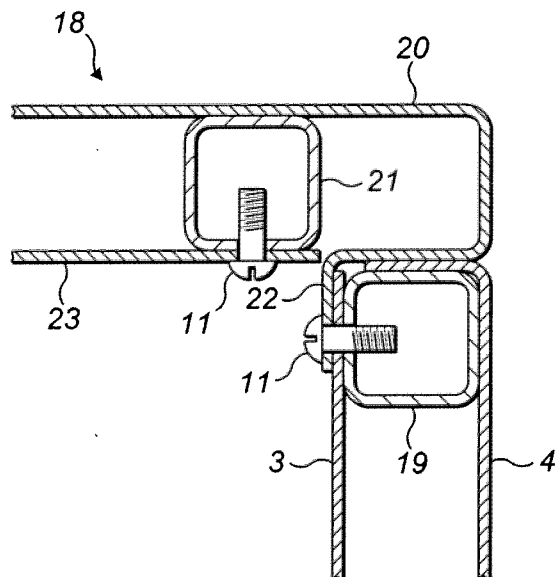


FIG. 2

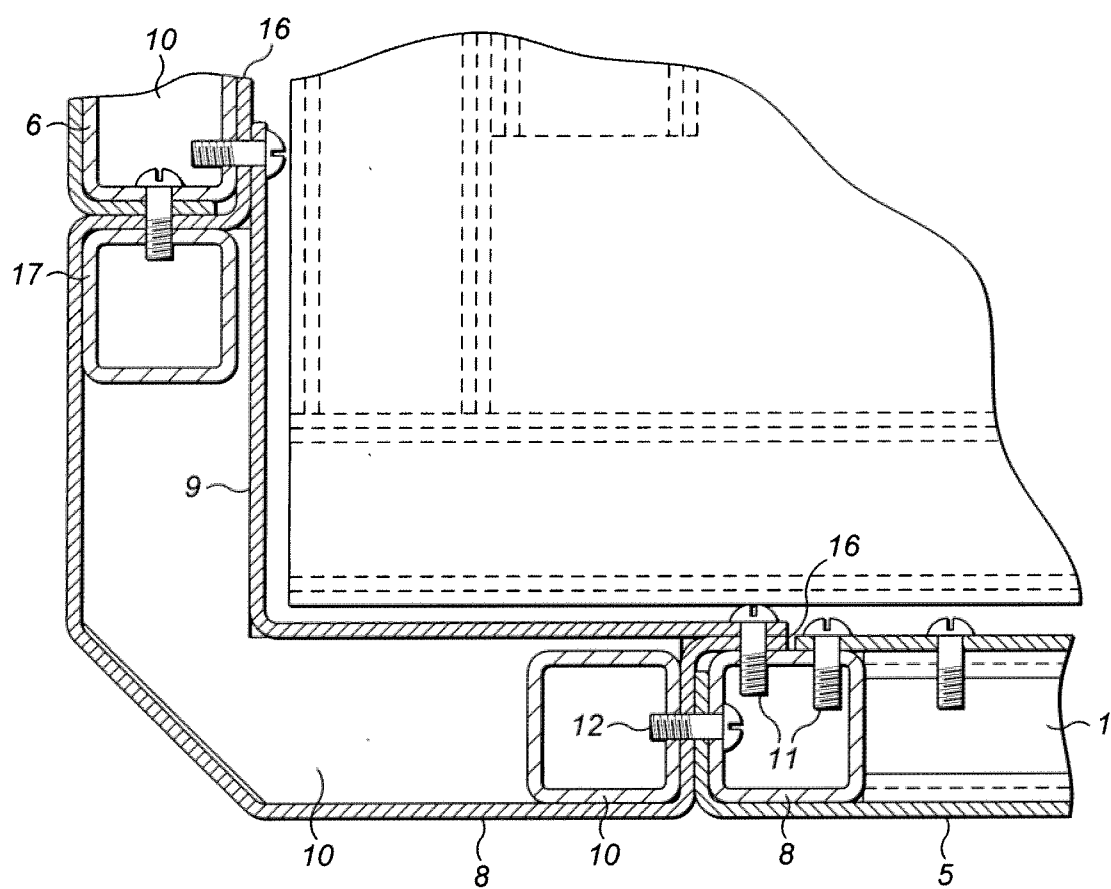
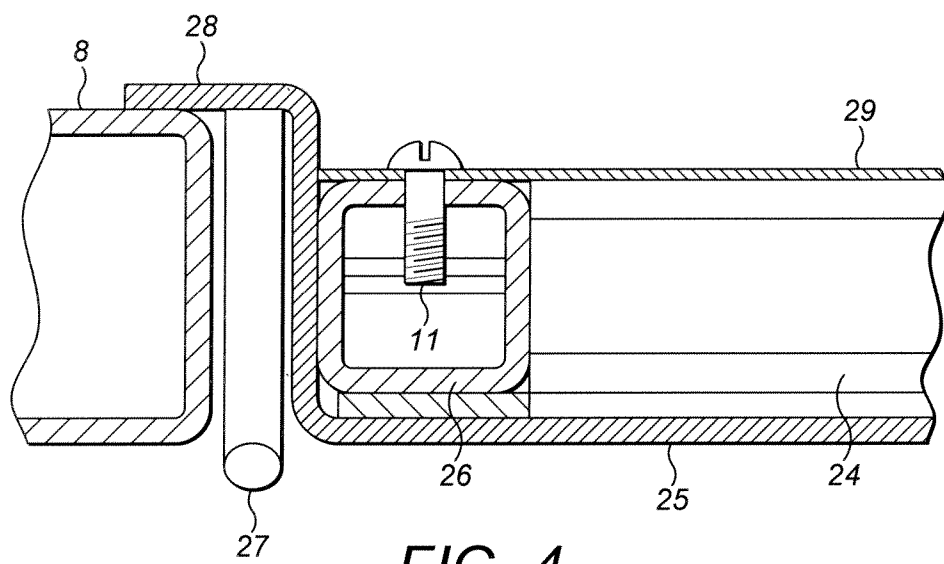


FIG. 3

3 / 3



INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2012/050465

A. CLASSIFICATION OF SUBJECT MATTER INV. E04H9/04 E04H9/06 E04H9/10 E04B1/98 E04B5/12 F41H5/013 E04C2/08 ADD. E04B1/61		
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) E04H E04B F41H E04C		
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 practicable, 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.
Y	WO 2008/112449 A1 (SEAVY RICHARD J [US]) 18 September 2008 (2008-09-18) paragraph [0014]; figure 7 -----	1,2,4
X	EP 1 944 432 A1 (SAELZER SICHERHEITSTECHNIK [DE]) 16 July 2008 (2008-07-16)	3
Y	figure 2 -----	1,2,4
☐ Further documents are listed in the continuation of Box C. ☒ See patent family 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 application or patent 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 14 May 2012		Date of mailing of the international search report 22/05/2012
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Topcuoglu, Sadik Cem

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2012/050465

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008112449 A1	18-09-2008	US 2008222987 A1 WO 2008112449 A1	18-09-2008 18-09-2008
EP 1944432 A1	16-07-2008	DE 202007000682 U1 EP 1944432 A1	22-03-2007 16-07-2008