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(54) Title of the Invention: **Anti-Tamper device**
Abstract Title: **Anti-tamper device for a hinged panel**

(57) An anti-tamper device for a hinged panel, e.g. a window or door, comprises a catch 30 and a grip 10 for obstructing the forcible opening of a hinged panel 70 out of its frame 60. The grip 10 and the catch 30 are to be fixed to a hinged 62 side of the panel or the frame. The catch 30 is shaped as a hook 44 with a hook gap (58 Fig. 5) between its underside and the surface of the panel or the frame. Normal closing of the panel aligns the grip with the hook gap in a pre-inhibitory configuration. Application of a force, e.g. during an attempted burglary, to prise the panel 70 out of the frame 60 brings the grip and catch into resistive engagement to resist the forcible opening. Preferably the grip 15 comprises a metal plate 10 with a bridge section (12 Fig 3) under which the hook 44 engages. Packers (20 Fig 3) may be used under the plate section to enable the height of the grip to be altered.

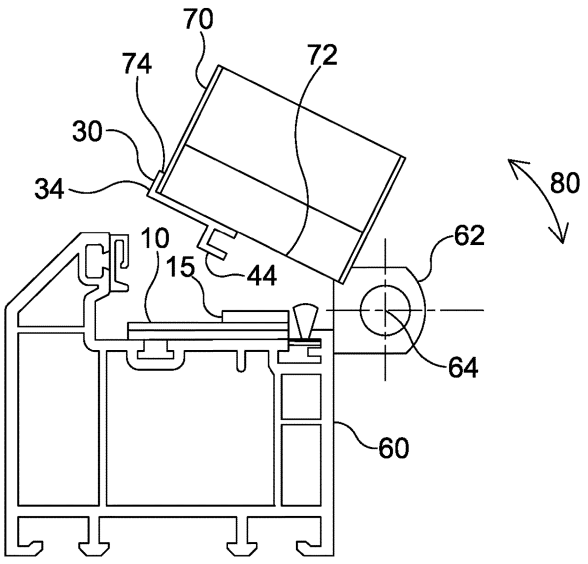

Fig. 7

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

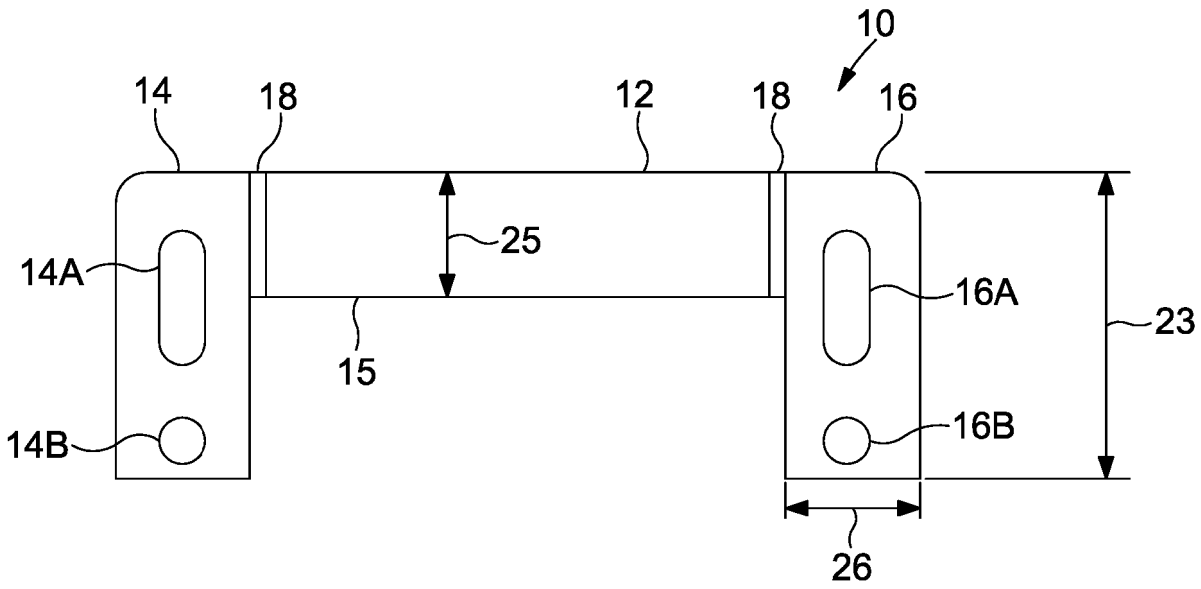

Fig. 1

13 05 15

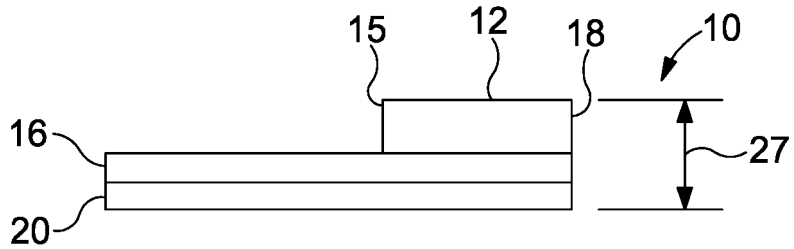

Fig. 2

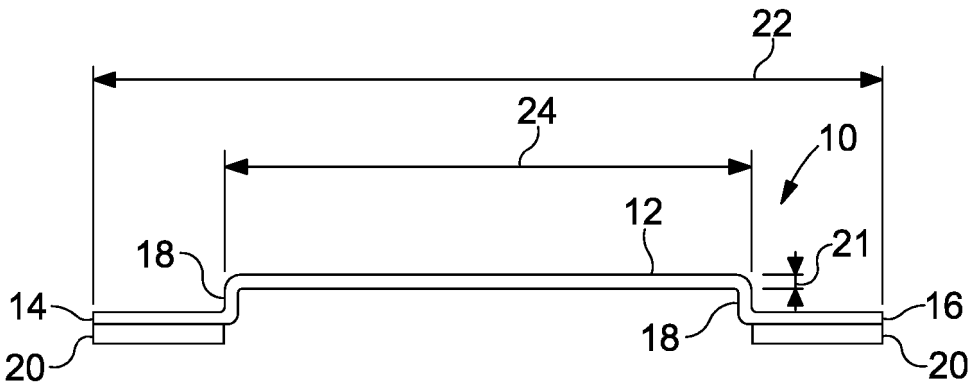

Fig. 3

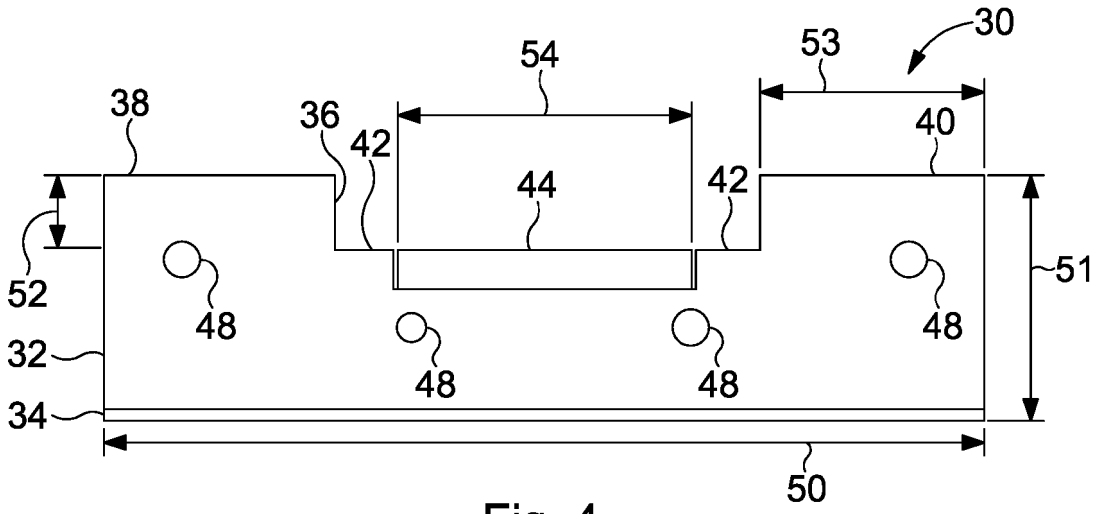

Fig. 4

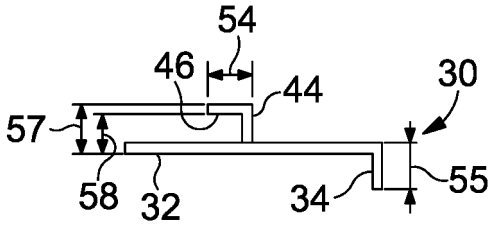

Fig. 5

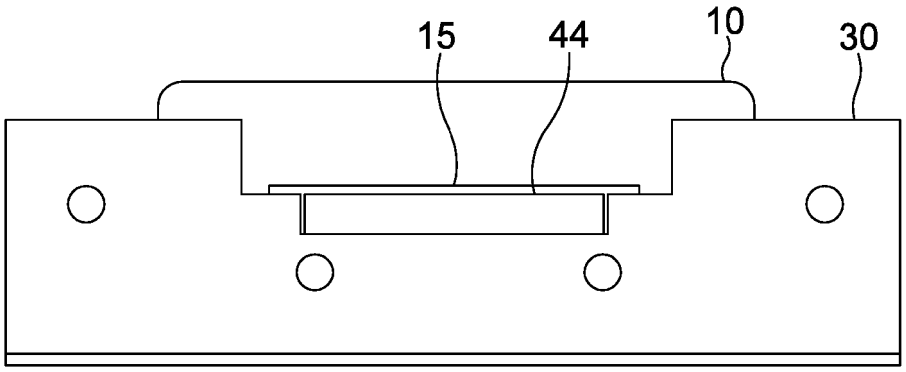

Fig. 6

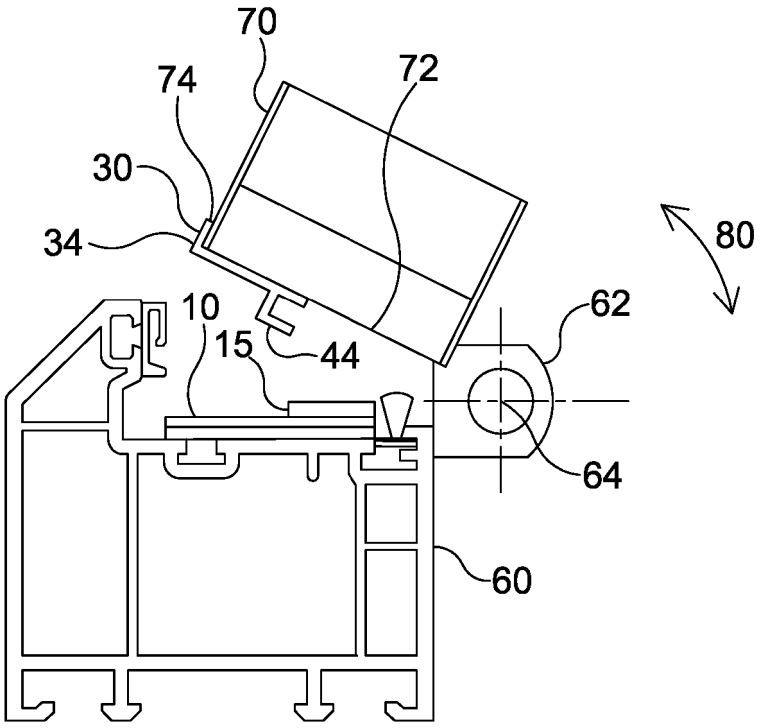

Fig. 7

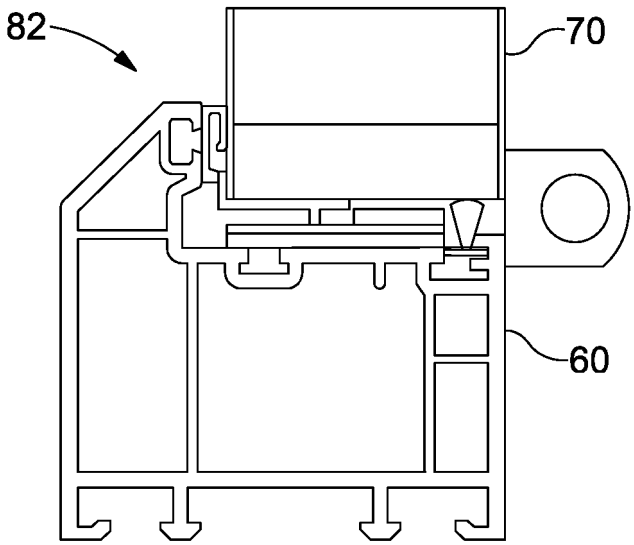

Fig. 8

13 05 15

Anti-Tamper Device

The present invention relates to security devices for hinged door or window panels. More specifically, the present invention relates to an anti-tamper device hindering forcible opening of a door or window panel out of its frame.

The hinged side of a door or window panel may be targeted in an attempt to forcibly prise the panel out of its frame, because in the absence of reinforcements, the panel can be jemmied open in a direction perpendicular to the plane of the panel.

Such forcible entry attempts may be impeded by fitting hinge pins/bolts or so-called dog bolts. These are bolts that protrude from the hinged side of a panel into a corresponding keep in a frame, when the panel is closed in the frame. However, the effectiveness of dog bolts depends on their length, and so it is necessary to rout out a keep for each bolt into the frame.

In order to avoid any obstruction of the opening and closing of a panel in normal day-to-day use, a conventional keep has a diameter larger than that of the dog bolt or pin to provide some leeway. Due to the required leeway, the bolt cannot be firmly seated against the keep in a direction perpendicular to the plane of the panel and frame, which reduces the effectiveness of conventional dog bolts.

The present invention seeks to provide improvements to security devices.

In accordance with a first aspect of the present invention, there is provided an anti-tamper device for obstructing the forcible opening of a hinged panel out of its frame, the anti-tamper device comprising a catch and a grip, the grip configured to be fixed to one of said panel and frame on a hinged side thereof, the catch comprising an underside for fixing onto a surface of the other of said panel and frame, wherein a portion of the catch is shaped to provide a hook gap between the underside of the catch and the surface to which it is to be mounted; the anti-tamper device being configured such that normal closing of said panel aligns said grip with the hook gap in a pre-inhibitory configuration, wherein application of a force at the hinged side perpendicular to the plane of the closed panel and frame to prise them apart brings the grip into resistive engagement thereby to resist said forcible opening.

The catch and the grip may be made of metal, such as steel or aluminium. The metal may be hardened and/or tempered, to increase its strength.

By "hook gap", the opening of the hook is meant which engages with another item, to engage with it or retain it. For conventional hooks, i.e., hooks formed by bending a tip of a shank (or an edge of a sheet, for a wide hook) back onto itself; a conventional hook gap or gape is the width of the aperture between the tip of a hook and the shank. In this specification, the hook gap is understood functionally, as the portion of the hook that is configured to receive or to engage with another component as it enters the hook. Crucially, if the hook gap need not be formed by the inside surface of the back-bent tip/edge, but may be provided between the underside of an upwards-bent portion of a sheet and another surface to which the sheet is fixed. By "underside", a face of the catch is meant that faces the surface of the frame or panel to which the catch is mounted.

It will be understood that the pre-inhibitory configuration is a configuration in which the normal opening and closing of a door/window panel about its hinged side is not inhibited. However, a force acting at the hinged side in a direction perpendicular to the plane of the closed panel and frame will bring the catch and the grip into resistive engagement.

It will be understood that the resistive engagement, brought about by forcible displacement of the panel, is achieved by the grip slipping into the hook gap of the catch and abutting against the inside of the hook gap, thereby obstructing an attempt to forcibly prise apart the panel and the frame.

Conveniently, the catch is provided as a metal plate or metal leaf. A portion of the metal plate is bent in a direction away from the surface to which the catch is to be mounted, so that the underside of the portion is lifted from the plane of said surface, thereby providing a hook gap between the underside of the portion and said surface. In practice, the portion that is bent may be a tongue or a tab on the catch, or an entire length of a side of the catch.

As such, the catch differs from a known design in which a hook is formed on a metal leaf by curling part of the metal leaf backwards, such that a hook gap is constituted by the inside of the curled part of the metal leaf. In contrast, the hook gap of the present invention is at the underside of the catch.

This allows the anti-tamper device of the present invention to be fitted in frame-panel systems that have only a small air gap, for instance composite door leafs, which are door panels with a flat edge profile. To better illustrate what is meant by "flat edge", the following paragraphs shall illustrate the difference between a door sash and a door panel.

Door or window sashes comprise a pane, framed by a sash frame (which sash frame is part of the sash). The sash frame is to be hinged in a corresponding door/window frame (which door/window frame would typically be installed in a wall). Most sash frames are made of upvc-extruded hollow beams having a profile comprising several ridges and grooves. When assembled, the profile is present on the circumference of the assembled sash. Some of the groove dimensions are standardised in the industry (referred to as "Eurogroove") and facilitate the alignment of fixtures, such as locks, espagnolettes, etc., with corresponding grooves in a door/window frame. Furthermore, the depth of the grooves determines the width of the air-gap between the sash and the frame, and this width may also be standardised (referred to as "stack-height", e.g. to accommodate friction stay hinges of standard height).

Panel doors/windows, in contrast, do not normally comprise an extruded sash frame. A panel comprises a sub-frame of vertical and horizontal beams, conventionally referred to as stiles and rails. These beams may be made of steel, aluminium, or timber, and the frame is then filled with foam or other material and covered with a surface layer.

Although the nomenclature and exact design of panel doors/windows may vary, for the present invention it is relevant that the outer circumferential surface of the edge of a panel is essentially flat, because any grooves would have to be routed into the edge, which is a labour-intensive step. A panel may comprise a circumferential rebate, but this is typically provided as a seal or to reduce draft, and not as an alignment feature for fittings. In any case, the profile of a panel door/window is considerably less

complex than an extruded profile, and in particular, will not normally comprise a circumferential groove.

An example of a panel door is a composite door, whose door leaf may be made of fire-retardant components. For simplicity, the present description makes reference to composite doors. However, the invention should be understood to be applicable to any hinged panel or leaf with a flat edge. Furthermore, although the invention is particularly advantageous for flat edge panels, the anti-tamper device may also be installed on profiled sash-frame systems.

The difficulty in providing a catch-and-grip type anti-tamper device for composite doors is that, because of the flat edge, and because there is no Eurogroove, the gap between the panel and the frame is much smaller than in extruded profiles. The gap between a frame and a door/window closed in the frame can be expected to be at most 9 mm, compared to a stack height of typically between 13 mm and 17 mm for sash frames with extruded profiles.

For this reason, the provision of a catch-and-grip type anti-tamper device with a height of no more than 9 mm, measured from the base of the catch that is to be mounted to the surface of the panel or the frame to the apex of the catch, is a crucial advantage.

By providing a hook gap on the underside of the catch, the present invention allows a catch to be provided with a profile height of no more than 9 mm, wherein the profile height is considered to extend from the apex of the catch to the base of the catch that is to be mounted to a surface of said panel or frame. By “profile height” it is thus meant that the catch will not protrude more than 9 mm above the surface to which it is to be mounted.

In an embodiment, the hook gap extends at least 3, 4, 5, 6, or 7 mm from the base of the catch that is to be mounted to the surface of the panel.

Although the panel-frame air gap should not be expected to exceed 9 mm, the exact width of the air gap varies between manufacturers and different panel models. Thus, as the catch is mounted to one of the panel and frame, and the grip is mounted to the other of the panel and frame, the distance between the grip and the catch in the plane

of the closed frame depends on the width of the air gap. By maximising the width of the hook gap, as long as this allows the catch to be fitted into an air gap, a larger tolerance for alignment between grip and catch is provided. Due to the larger tolerance, the same design of an anti-tamper device can be installed on frame/panel configurations having different air gap widths. In other words, by providing a larger hook gap, the versatility of the anti-tamper device for different frame/panel configurations is increased.

In an embodiment, the grip is provided by an edge of a bridge of a bracket. The edge of the bridge may have a height of least 3, 4, 5, 6, or 7 mm measured from the base of the grip that is to be mounted to a surface.

Alternatively, the grip may be of the same shape as the catch, i.e., comprising a base plate and an upwards-bent portion to provide a hook.

When the grip is provided by a bridge, the resistive engagement can be effected by the edge of the bridge moving into the hook gap, and, consequently, by the engaging edge of the hook gap slipping between the edge of the bridge and the surface to which the grip is mounted.

As with the hook gap, increasing the height of the bridge increases the tolerance for alignment with the catch. This further increases the versatility of the anti-tamper device.

The versatility is further increased if both the height of the hook gap and the height of the bridge are maximised, so that a particular catch-grip design can be used for a large number of panel-frame systems.

When the catch and the grip are in a pre-inhibitory configuration, the edge of the bridge is positioned between the underside of the catch providing the hook gap and the surface to which the catch is fixed.

In an embodiment, one of the catch and the grip is provided with a ledge to provide an alignment feature during installation of the anti-tamper device.

The ledge serves as an alignment feature. Conveniently, the ledge may be provided by a side that is bent at a right angle to the base of the catch, or grip, respectively. Conveniently, the ledge is on the face that is mounted to a surface of one of said panel and frame. During installation, the ledge may be abutted against an elongate edge of the panel or frame, and so, insofar as an elongate edge can be assumed to run parallel to the plane of the panel or frame, this allows the catch or grip to be oriented parallel to the plane.

In an embodiment, one of the hook gap and the grip is shorter than the other in a direction parallel to the extent of the hook.

It is understood that the engaging edges of the grip and of the catch extend in a direction essentially parallel to the hinge axis of the panel, when installed. If one of the hook gap or the grip is less wide than the other, the need for precise alignment of the grip and the catch in a direction parallel to the hinge axis is reduced. For instance, in embodiments in which the grip is provided by an edge of a bridge, the portion of the catch forming the hook gap may be less wide than the bridge by a margin of 2 to 5 mm, to allow ensuring that the edge of the hook can slip under the bridge without difficulty.

It will be understood that the catch and the grip comprise a base to be mounted onto the panel or frame. One or both of the catch and the grip may comprise one or more lobes, or wings, for mounting to said panel or frame, each lobe configured for receiving fixing means. E.g., the lobes or wings may be configured for receiving fixing means (e.g., screws) for mounting to said panel or frame. The lobes increase the area to allow a plurality of apertures for fixing means to be provided, as a plurality of fixing means and/or spreading the fixing means over a larger area allows a load on individual fixing means to be reduced. For instance, if screws are used as fixing means, the risk of a screw head snapping off under influence of a force is reduced when the load is distributed over several screws. Further, the local load in the panel or frame, at the point where a fixture is located, is also reduced.

One or both of the catch and the grip may comprise elongate apertures in their base plates. The elongate apertures serve as screw slots. The elongate screw slots provide a means of aligning one of the catch and grip with the other during installation on the

panel or frame. The apertures may be countersunk to facilitate flush installation of fixing means.

Conveniently, one of the catch and the grip is provided with the above-mentioned ledge, and the other of the catch and the grip is provided with elongate apertures.

During installation, the ledge allows the first of the catch and the grip to be aligned parallel to an edge of the panel or frame, and the elongate apertures on the second of the catch and the grip allow it to be positioned relative to the ledge.

It will be appreciated that position of the catch and the grip relative to one another must be aligned sufficiently well so that, in the pre-inhibitory configuration, the normal opening and closing of the panel about its hinge axis is not inhibited. At the same time, it is desired that only a slight displacement of the panel resulting from application of a force at the hinged side, perpendicular to the plane of the closed panel, should cause the grip and catch to engage, because any leeway will delay the resistive engagement and thereby reduce the effectiveness of the anti-tamper device.

The Applicant's co-pending application GB 1306184.1 discloses a device related to the present invention, in which a locator plate is used to facilitate the alignment of a catch and a grip in a pre-inhibitory configuration in a groove of a profiled door/window sash and corresponding frame.

In the present anti-tamper device, the positioning in the pre-inhibitory configuration in three dimensions is provided by one or more of the following means. The maximising of the hook gap and/or of the bridge height provides a tolerance for different air gap widths between the panel and the frame in a direction perpendicular to the hinge axis and in the plane of the panel/frame. The ledge allows one of the catch and the grip to be aligned parallel to the hinge axis. The elongate apertures allow the other of the catch and the grip to be aligned perpendicular to the plane of the panel/frame, and also relative to the ledge. Further, the shorter engaging edge of one of the grip and the catch provides some tolerance parallel to the hinge axis.

It will be appreciated that not all of these alignment features need to be provided in every embodiment. However, an embodiment comprising all the alignment features

will facilitate the installation of the catch and the grip in a pre-inhibitory configuration. A well-aligned pre-inhibitory configuration is advantageous because this reduces the leeway required before the grip and the catch engage in an attempt to forcibly prise the panel out of its frame. This increases the effectiveness of the anti-tamper device.

Furthermore, the alignment features do not increase the profile height of the anti-tamper device, so that the device can be provided for panel/frame configurations with an air gap of no more than 9 mm.

In an embodiment, one of the catch and grip may be provided with packers. The packers allow the height of the catch or grip to be adjusted without having to alter the geometry of the catch or grip. The packers may be welded onto the catch or grip. The packers will have apertures corresponding to any apertures in the metal plate.

Embodiments of the present invention will now be described with reference to the accompanying Figures, in which:

Figure 1 is a top view of a metal plate formed to constitute a grip in accordance with an embodiment of the present invention;

Figure 2 is a side view of the metal plate of Figure 1;

Figure 3 is an elevational view of the metal plate of Figure 1;

Figure 4 is a base view of a metal plate formed to constitute a catch in accordance with an embodiment of the present invention;

Figure 5 is a side view of the metal plate of Figure 4;

Figure 6 is a base view of the metal plate of Figure 4 and a top view of the metal plate of Figure 1, the metal plates constituting a grip and catch in a pre-inhibitory configuration;

Figure 7 is a cross-sectional view along a part of a panel hinged in its frame, showing the catch and grip installed; and

Figure 8 is a cross sectional view of the components shown in Figure 6, in which the panel is closed in the frame and the catch and grip are aligned in a pre-inhibitory configuration.

Figure 1 shows a metal plate 10 which may be formed from sheet metal or any other suitable material. The metal plate 10 provides the grip of the present invention. The metal plate 10 is a metal bracket comprising a bridge 12 between two side wings (or lobes) 14 and 16. Seen from above, the bridge 12 is a generally elongate rectangle with two long sides. One long side of the bridge 12 is aligned with the edges of the side wings 14 and 16. The width of the bridge 12 is about 40% of the width of the side wings 14 and 16. Thus, the second long side of the bridge 12 defines an inner edge 15 constituting a grip.

Each of the side wings 14 and 16 is provided with an elongate aperture 14a and 16a, and with a round aperture 14b and 16b. The apertures are provided as holes for fixing means, such as screws, and may be countersunk. The side wings provide space for a plurality of apertures. In the illustrated embodiment, two apertures per side wing are provided to increase the strength of the anchoring of the metal plate on the panel or frame to which it is fixed, and to reduce the load on each individual fixing means. Further, the location of the apertures laterally and/or forward of the grip assists in distributing the load onto the panel/frame as the grip engages with a hook gap.

As shown in Figures 2 and 3, the bridge 12 is connected to each of the side wings 14 and 16 via a shoulder 18, which is a double-bend Z profile with bend angles of about 90 degrees. Thus, the bridge 12 is above the plane of the side wings 14 and 16. The height of the shoulders 18 may be altered to define the height of the bridge 12.

As shown in Figure 3, the metal plate 10 has a thickness 21 of about 1.5 mm, a length 22 of about 80 mm, and, indicated in Figure 1, a total width 23 of about 34 mm. The bridge length 24 is 50 mm including the shoulders 18, and the bridge width 25 is about 14 mm. The width 26 of each side wing 14 and 16 is 15 mm.

The wings are reinforced by packers 20 that are either integral with the metal plate 10 or welded to the metal plate 10. The packers 20 allow the height of the grip to be

adjusted independent of the plate thickness 21 of the metal plate 10 and independent of the height of the shoulders 18. The total height 27 of metal plate 10, including the packers 20, is 6 mm.

Turning to Figure 4, a metal plate 30 constituting a catch of an embodiment the present invention is shown. As shown in Figure 4, the shape of the metal plate 30 corresponds generally to an elongate rectangle, comprising a central, elongate body 32. A ledge 34 extends along one of the long edges of the elongate body 32. On the long side opposite that of the ledge 34, the elongate body 32 comprises a lobe 38 and a lobe 40, one lobe each located at one of the short ends of the elongate body 32. Between the lobes 38 and 40, a cut-out 36 is defined that measures about a quarter of the width of the metal plate 30. The cut-out 36 has inner edge 42. Along part of the inner edge 42, a tab 44 is provided. As shown in Figure 5, the tab 44 is double-bent, providing a Z-profile, first bent at about 90 degrees in a direction opposite that of the ledge 34, and then bent parallel to the elongate body 32. The metal plate 30 has an underside that is to be fixed to a panel or frame. By way of the tab 44, the metal plate 30 is shaped to provide an underside 46 that is parallel to the plane of the elongate body 32. With reference to the underside 46, the ledge 34 is provided by a portion of the metal plate 30 that is bent at right angle to the underside.

Four apertures 48 are provided in the metal plate 30. The apertures 48 serve as holes for fixing means, such as screws, and allow the metal plate 30 to be fixed to a panel or frame. The apertures 48 may be countersunk to allow flush installation of the fixing means. The apertures 48 are distributed to spread a load applied to the metal plate 30 from the side of the tab 44. Two apertures 48 are provided just behind the tab 44, to hinder a bending away of the tab 44 as the grip engages. Two apertures 48 are provided laterally of the tab 44, one in the lobe 38 and one in the lobe 40, to further reinforce the connection between the metal plate 30 and the panel or frame to which it is to be fixed.

In the depicted embodiment, the metal plate 30 has a length 50 of 120 mm, a width 51 of 32 mm (including the lobes 38 and 40), and a plate thickness of about 1.5 mm. The lobes 38 and 40 protrude a distance 52 of 11 mm from the elongate body 32, and have a lobe width 53 of 31 mm. The tab 44 has a tab width 54 of 40 mm and is located centrally on the inner edge 42. Thus, the tab width 54 is only about a third of the metal

plate length 50, and so two of the apertures 48 can be provided laterally of the tab 44 to spread the load. Further, the tab width 54 is shorter than the bridge length 24 of 50 mm. This provides some leeway for the lateral alignment of the catch relative to the grip. The ledge 34 is bent at about 90 degrees from the plane of the elongate body 32 and has a ledge height 55 of 6 mm (including the plate thickness). The tab 44 has a tab length 56 of 6 mm and a tab height 57 of 6.5 mm (including the plate thickness of 1.5 mm). Considering a plate thickness of 1.5 mm, a space 58 between the underside 46 and the surface onto which the metal plate 30 is to be mounted is about 5 mm. The space 58 constitutes the hook gap.

Figure 6 shows the metal plate 30 of Figure 4 in a pre-inhibitory configuration with a metal plate 10 of Figure 1. This shows the tab 44 aligned parallel to the inner edge 15.

Figure 7 illustrates the metal plates 10 and 30, providing the catch and grip of an embodiment, installed on a frame 60 and a composite door 70, hinged on hinge 62 having a hinge axis 64. The hinge axis extends perpendicular to the cross-section of Figure 7. The frame 60 has an extruded hollow profile. The composite door 70 has a circumferential edge face 72 with an outer edge 74. The circumferential edge face 72 is flat and has no complex profile. The outer edge 74 is the edge of the circumferential edge face 72 that is distal to the hinge 62.

For installation of the anti-tamper device, the metal plate 30 may be installed first by fixing it to the flat circumferential edge face 72, such that the ledge 34 abuts against the edge 74 of the composite door 70. As illustrated, the metal plate 30 is thereby aligned with the edge 74 of the composite door 70 in a direction parallel to the hinge axis 64. It will be appreciated that the metal plate 30 is fixed to the composite door 70 by way of screws or other suitable fixing means via apertures, which are, however, not shown in Figure 7 to simplify the illustration.

The installation of the anti-tamper device continues with the positioning of metal plate 10 to the frame 60 at an appropriate position via elongate apertures (not shown in Figure 7). Because the frame 60 has an extruded profile, there is some leeway for positioning the metal plate 10 perpendicular to the hinge axis 64. Fixing means in the elongate apertures (14a and 16a in Figure 1) will hold the metal plate 10 in place, but allow slight movement along the elongate apertures to adjust the position of the metal

plate 10 relative to metal plate 30. The desired configuration between the catch and the grip is that the tab 44 and the inner edge 15 are as close as possible without impeding the normal opening and closing of the door 70 in the direction of arrow 80 about the hinge axis 64. Once the metal plate 10 is aligned, it can be fixed in the desired position via the round apertures (14b and 16b in Figure 1). Because of the leeway and in the other dimension, the metal plate 10 can be considered aligned once the desired position along the slotted apertures 14a and 16a has been set. For instance, the tab 44 may not be precisely centred relative to the edge 15 in a direction parallel to the hinge axis, but this will not hamper the pre-inhibitory configuration.

Figure 8 shows the door 70 closed in the frame 60, with the catch and grip in a pre-inhibitory configuration. An attempt to jemmy the door open, in a direction approximately indicated by arrow 82, will bring the grip into engagement with the hook gap of the catch and thus impede the forcible opening.

An internal test of the anti-tamper device was carried out using a test rig with a hinged composite door and the anti-tamper device. The test rig is capable of applying increasing force in the low kilonewton range to a hinged part of a door, and of then maintaining the force for a pre-determined duration. To provide an illustration of the magnitudes involved, typical security devices are expected to withstand a force of 3 kN or 4 kN for a certain time, e.g., at least 12 seconds, in order to qualify for a certain security certifications. It is not uncommon that normal door fixtures yield and break before a test rig reaches 3 kN.

A prototype of the present anti-tamper device was able to withstand in excess of 6.5 kN before the internal test was discontinued due to the structural failure of the door.

The internal test result indicated that catch-and-grip type anti-tamper devices are a viable security device for composite door panels, despite the narrow air gap.

CLAIMS:

1. An anti-tamper device for obstructing the forcible opening of a hinged panel out of its frame, the anti-tamper device comprising a catch and a grip,

the grip configured to be fixed to one of said panel and frame on a hinged side thereof,

the catch comprising an underside for fixing onto a surface of the other of said panel and frame, wherein a portion of the catch is shaped to provide a hook gap between the underside of the catch and the surface to which it is to be mounted;

the anti-tamper device being configured such that normal closing of said panel aligns said grip with the hook gap in a pre-inhibitory configuration, wherein application of a force at the hinged side perpendicular to the plane of the closed panel and frame to prise them apart brings the grip into resistive engagement thereby to resist said forcible opening.

2. The anti-tamper device in accordance with claim 1, wherein the portion of the catch extends no more than 9, 8, or 7 mm from the base of the catch that is to be mounted to the surface of the panel.

3. The anti-tamper device in accordance with claim 1 or claim 2, wherein the hook gap extends at least 3, 4, 5, 6, or 7 mm from the base of the catch that is to be mounted to the surface of the panel.

4. The anti-tamper device in accordance with any one of the preceding claims, wherein the grip is provided by an edge of a bridge of a bracket, and wherein the edge of the bridge has a height of least 3, 4, 5, 6, or 7 mm measured from the base of the bracket that is to be mounted to a surface.

5. The anti-tamper device in accordance with any one of the preceding claims, wherein one of the catch and the grip is provided with a ledge to provide an alignment feature during installation of the anti-tamper device.

6. The anti-tamper device in accordance with any one of the preceding claims, wherein one of the hook gap and the grip is shorter than the other in a direction parallel to the extent of the hook.

7. The anti-tamper device in accordance with any one of the preceding claims, wherein at least one of the catch and the grip comprises one or more lobes for mounting to said panel or frame, each lobe configured for receiving fixing means.

8. The anti-tamper device in accordance with any one of the preceding claims, wherein at least one of the catch and the grip comprises elongate apertures to receive fixing means and to facilitate alignment of the device relative to the fixing means.

9. The anti-tamper device in accordance with any one of the preceding claims, wherein one or both of the catch and the grip are made from metal.

10. The anti-tamper device in accordance with any one of the preceding claims, wherein one or both of the catch and the grip comprise a packer.

11. The anti-tamper device in accordance with claim 10, wherein the packer is welded to catch or grip, respectively.

12. A kit of parts comprising the anti-tamper device of any one of the preceding claims and at least one additional grip or one additional catch.

13. An anti-tamper device as hereinbefore described with reference to Figures 1 to 8.

Intellectual Property Office

Application No:	GB1402764.3	**Examiner:**	Mr Philip Lawrence
Claims searched:	1-13	**Date of search:**	6 August 2014

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1, 6, 8, 9, 12	GB2332011 A (VENT GUARD LTD.), see Abstract and Figures noting underside of surface 21 and hook gap 22.
A	-	GB2474674 A (LSSD UK LTD.), see Abstract and Figures.
A	-	GR 20080100795 A (LEONTARIDIS), see EPODOC English Language Abstract and Figures.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

Worldwide search of patent documents classified in the following areas of the IPC

E05B; E05D

The following online and other databases have been used in the preparation of this search report

EPODOC, TXTE, WPI

International Classification:

Subclass	Subgroup	Valid From
E05B	0017/20	01/01/2006
E05B	0017/00	01/01/2006
E05D	0011/00	01/01/2006