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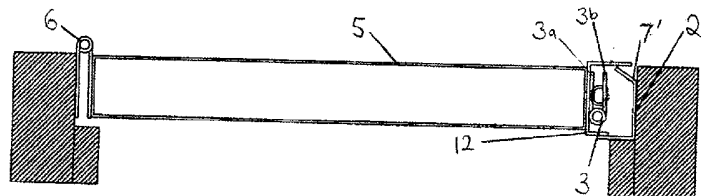
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(58) Field of Search:  
INT CL E05B, E05C, E06B  
Other: ONLINE: EPODOC, WPI

(54) Abstract Title: Security apparatus for securing an opening such as a window or door

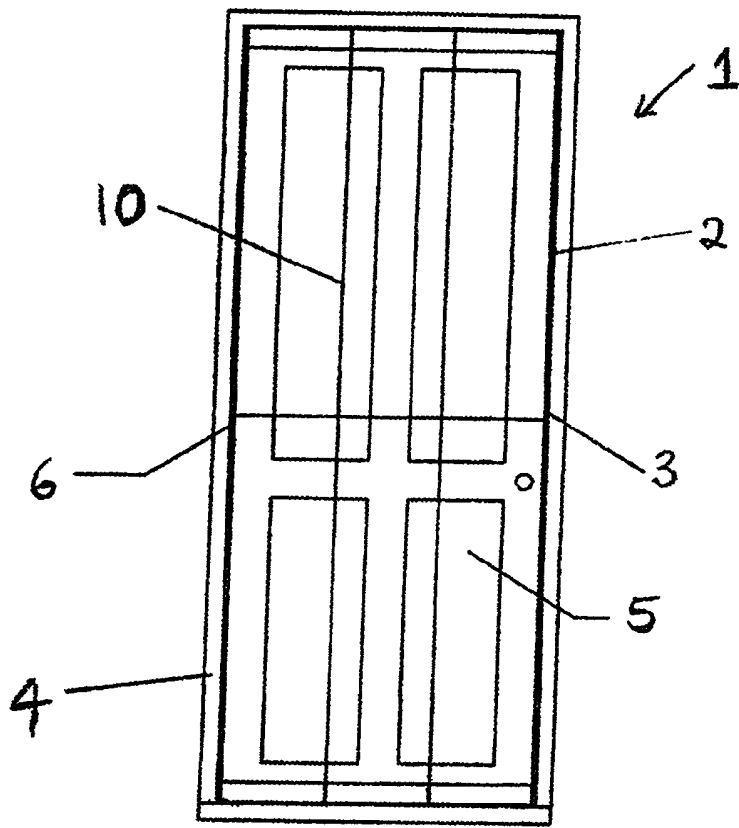
(57) A security apparatus comprises a locking arrangement with a moveable member and a capture portion, eg a keep plate 2. In a locked configuration the capture portion restricts movement of the moveable member. The moveable member may be a hinged plate 3 which extends along the length of the door 5 or window, and in the locked configuration it may be biased away from the door or window by at least one control element.

Figure 3a



1/3

Figure 1



2/3  
Figure 2

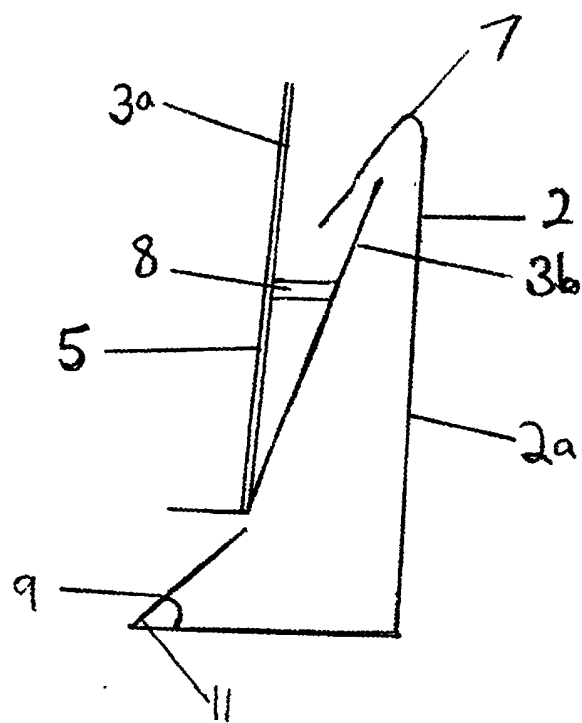


Figure 3a

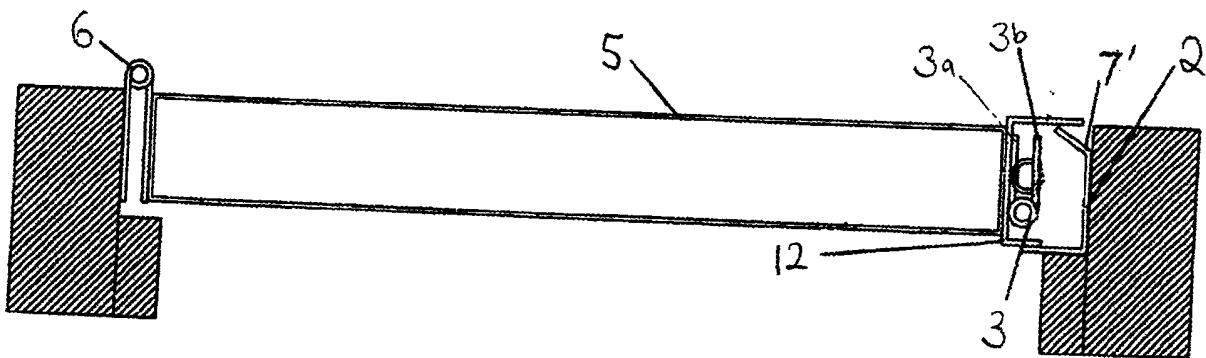
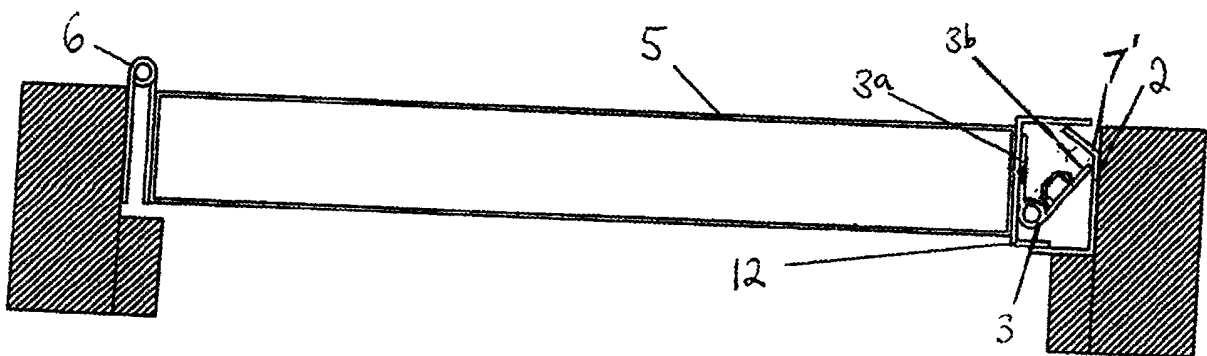


Figure 3b



## Security Apparatus

### Field of the Invention

The invention relates to a security apparatus; in particular a security apparatus for securing an opening such as a window or door.

### Background of the invention

Doors and windows are the usual points of access to buildings and are targets for burglars or other intruders. Therefore it is important that they are made as secure as possible.

Conventional door locks provide resistance to unauthorised entry at a single point. There are a number of known additional security features that can be fitted to doors such as bolts and chains. Many additional security features involve extra steps for the user in locking the door and as such are inconvenient.

Security doors or doors having enhanced security features are usually unsightly and/or heavy. An example of a prior art device is a steel plate fitted to a door to provide strength. Such security features are often inappropriate for use with older buildings or listed buildings.

Many are unsuitable to add to existing doors or require substantial modification to existing doors and consequently cannot be fitted or easily repaired on site at the building.

It would therefore be desirable to provide an improved security apparatus.

## **Summary of the Invention**

One aspect of the invention provides a security apparatus comprising a locking arrangement having a moveable member and a capture portion, wherein in a locked configuration the channel restricts movement of the moveable member.

Preferably, the moveable member is a hinged plate. The moveable member may be attached to a door or window.

The security apparatus may comprise more than one moveable member.

Advantageously, the moveable member may extend along the length of one side of the door or window. The moveable member may be rebated in a door or window.

Preferably, when the security apparatus is in a locked configuration the moveable member is biased away from the door or window by at least one control element such that at least a portion of the moveable member extends into the capture portion. Preferably, the control element is arranged to selectively move the apparatus between locked and unlocked positions. In a preferred embodiment of the invention, the control element is a pin. Preferably the pin comprises a part of a lock mechanism.

Advantageously, when the security apparatus is in an unlocked configuration, the at least one biasing member may be retracted such that the moveable member may be moved to a position in which it does not extend into the capture portion.

The capture portion may be integral with a frame surrounding an opening including a window or door.

The capture portion may comprise male and female members which may be caused to interlock when moved towards each other.

The capture portion may be a channel.

Preferably the security apparatus may further comprise a guard member. The guard member may be hinged. The guard member may comprise a biasing means. Preferably the biasing means comprises a spring. In a preferred embodiment the biasing means is arranged to bias the door in a closed position. Preferably the biasing means is arranged to bias the door in a position such that at least a portion of the moveable member extends into the channel and engages a wall of the channel.

Preferably, the guard member may be pivoted against the bias of the spring upon a user pulling the door or window. Advantageously, when the security apparatus is in an unlocked configuration, the door or window may be moved such that the moveable member is moved out of the channel to allow the door or window to be opened.

Advantageously the guard member may prevent ingress of dust or objects into the opening.

The security apparatus may further comprise at least one security bar. In a preferred embodiment at least one security bar may be located in a bore in a door or window.

At least one security bar may be associated with the locking arrangement. The security bar may be arranged such that at least one end of the security bar co-operates with the locking arrangement.

Another aspect of the invention provides a security apparatus comprising at least one security bar for securing an opening such as a window or door, wherein the at least one security bar is located in a bore in the window or door.

The security bar or bars may extend through a bore that is substantially the width or height of the door or window.

Alternatively, the security bar or bars may be positioned on a surface of the door or window.

Yes another aspect of the invention comprises a door or window with a security apparatus comprising a locking arrangement having a moveable member and a channel, wherein in a locked configuration the channel restricts movement of the moveable member.

The door or window may further comprise at least one security bar wherein the at least one security bar is located in a bore in the window or door.

The least one security bar may be associated with the locking arrangement.

Yet another aspect of the invention provides a method of securing an opening including a door or window by attaching the security apparatus to the opening.

### **Brief Description of the Drawings**

In the drawings, which illustrate the preferred embodiments by way of example:

Figure 1 shows a schematic representation of one embodiment of the security apparatus.

Figure 2 shows a schematic representation of the locking arrangement of the security apparatus of Figure 1.

Figure 3a shows a schematic representation of an alternative embodiment of the locking arrangement of the security apparatus of Figure 1.



Figure 3b shows a schematic representation of an alternative embodiment of the locking arrangement of the security apparatus of Figure 1.

### **Detailed Description of the Preferred Embodiment**

As shown in Figure 1, the security apparatus 1 comprises a keep plate 2 and a hinge 3. The hinge 3 is preferably a piano type hinge and extends along the full length of the door 5. The hinge 3 is rebated in the door 5.

The keep plate 2 extends along the door frame 4 and corresponds to the length of the hinge 3.

In one embodiment of the invention, the keep plate 2 may be integral with the door frame 4. The door is attached to the door frame 4 at its opposite side by a hinge 6. The hinge 6 is also preferably a piano type hinge and extends along the full length of the door 5.

As shown in Figure 2 the hinge 3 comprises plates 3a and 3b. Plate 3a is bolted to the door 5 and plate 3b extends towards the keep plate 2. The keep plate 2 is preferably L-shaped. One end of the keep plate 2 is turned back on itself, to form a channel 7 into which plate 3b extends. When the door 5 is closed and locked, pins 8 move towards the keep plate 2, pushing the plate 3b. The end of the plate 3b is inside the channel 7, which prevents the door from being pushed open because the movement of the end of the plate 3b is restricted by the wall or walls of the channel 7.

A spring steel clip 9 prevents dust from entering through the gap between the door 5 and door frame 4. It also prevents fingers being trapped in the door and pushes against the door to prevent rattling. The spring steel clip may be a hinged clip comprising a biasing means 11. The biasing

means 11 positions the spring steel clip 9 such that it pushes against the door and the plate 3b is pushed against a wall of the channel 7. To open the door, the door must first be pulled towards a user. This causes the spring steel clip 9 to pivot and the plate 3b to exit the channel 7. As the user unlocks the door using a key and handle, the pins 8 are retracted, pulling the plate 3b clear of the channel 7.

If forced entry of the door 5 is attempted, the plate 3b will be pushed further into the channel 7. This will prevent the door from being pushed open, due to the resistance of the plate 3b against the channel 7 and or the wall of the keep plate 2a.

The channel 7 may be arranged such that projections such as teeth (not shown) are pushed into recesses (not shown) when forced entry is attempted. This means that the apparatus 1 becomes more resistant to attack when the door 5 is being forced open.

In an embodiment of the invention, a number of hinges 3 and/or hinges 6 may be provided so that if a hinge 3 or 6 is broken, the door 5 will remain secure at the other hinge points.

As shown in Figure 1, the security apparatus 1 may comprise a number of security bars 10, which are applied to a door 5. The security bars 10 may be inserted inside the door 5 by drilling holes through the door 5, coating the bars 10 in resin and inserting the bars through the holes. The resin then sets when the bars are in place and helps to prevent splintering of the door 5 if attacked. The bars 10 are preferably steel bars and provide a strong metal skeleton, which strengthens the door.

The bars 10 may extend along substantially the entire height or width of the door as shown in Figure 1.

The bars 10 may alternatively be applied to the exterior or interior surface of the door and may be covered with cladding to improve the aesthetic appearance of the door 5.

The bars 10 may be arranged such that they are substantially aligned with existing dividing bars or portions of the door.

The ends of the security bars 10 may protrude beyond the edge of the door and form bolts which can be used in the locking mechanism of the door 5.

The security bars 10 may be attached to the hinge 3 or hinge 6, forming part of the security system for protecting the door.

The security apparatus 1 may be applied to windows and other openings in buildings, as well as to doors.

Figures 3a and 3b show an alternative arrangement of the locking mechanism of the security apparatus 1.

Plate 3a of the hinge 3 and a bracket 12 are bolted to the door 5. Plate 3b of the hinge 3 extends towards the keep plate 2.

One end of the keep plate 2 is turned back on itself, to form receiving portion 7'.

When in a locked position as shown in Figure 3b. The end of the plate 3b extends inside the receiving portion 7', which prevents the door from being pushed open because the movement of the end of the plate 3b is restricted by the wall or walls of the receiving portion 7'. In an unlocked position as shown in Figure 3a, the plate 3b is in a position free of the receiving portion 7'.

In the embodiments shown in Figures 1 to 3b, the keep plate 2 is secured to the frame of an opening such as a door frame and the hinge 3 is secured to a door. However, in alternative embodiments, the hinge 3 may be secured to a frame and the keep plate 2 could be secured to a door or window.

The receiving portion 7' which forms is integral with the keep plate 2. The receiving portion 7' extends at an angle to the frame or door to which it is attached (and at an angle from the rest of the keep plate 2) such that in a locked configuration it interferes with the plate 3b. When the end of the plate 3b engages the receiving portion 7' of the keep plate 2, the force exerted is in a direction that opens the hinge 3.

## Claims

1. Security apparatus for securing an opening including a window or door, comprising a locking arrangement with a moveable member and a capture portion, wherein in a locked configuration the capture portion restricts movement of the moveable member.
2. Security apparatus as claimed in Claim 1 wherein the moveable member is a hinged plate.
3. Security apparatus as claimed in Claim 1 or 2, wherein the moveable member is attached to a door or window.
4. Security apparatus as claimed in Claim 3, wherein the moveable member extends substantially along the length of a door or window.
5. Security apparatus as claimed in Claim 4, wherein the moveable member is rebated in a door or window.
6. Security apparatus as claimed in any preceding claim, wherein in a locked configuration the moveable member is biased away from the door or window by at least one control element.
7. Security apparatus as claimed in Claim 6, wherein in a locked configuration the moveable member is biased away from the door or window such that at least a portion of the moveable member extends into the capture portion.
8. Security apparatus as claimed in Claim 6 or 7, wherein the at least one control element is arranged to selectively move the apparatus between locked and unlocked positions.
9. Security apparatus as claimed in any of Claims 6 to 8, wherein the at least one control element is a pin.
10. Security apparatus as claimed in any of Claims 6 to 9, wherein in an unlocked configuration the at least one control element is retractable.

11. Security apparatus as claimed in any of Claims 6 to 10, wherein in an unlocked configuration, the moveable member is moveable to a position in which it does not extend into the capture portion.
12. Security apparatus as claimed in Claim 11, wherein the capture portion is attached to or integral with a frame surrounding an opening including a window or door.
13. Security apparatus as claimed in Claim 11, wherein the capture portion is attached to or integral with a window or door.
14. Security apparatus as claimed in any preceding claim, wherein the capture portion comprises a channel.
15. Security apparatus as claimed in any preceding claim, wherein the capture portion comprises male and female members that are caused to interlock when moved towards each other.
16. Security apparatus as claimed in any preceding claim, further comprising a guard member.
17. Security apparatus as claimed in Claim 16, wherein the guard member comprises a biasing means.
18. Security apparatus as claimed in Claim 17, wherein the biasing means is arranged to bias the door in a closed position.
19. Security apparatus as claimed in Claim 18, wherein the biasing means is arranged to bias the door in a position such that at least a portion of the moveable member extends into the capture portion and engages a wall of the capture portion.
20. Security apparatus as claimed in Claim 19, wherein the biasing means is a spring.
21. Security apparatus as claimed in any preceding claim, comprising more than one moveable member.

22. Security apparatus as claimed in any preceding claim, further comprising at least one security bar.
23. Security apparatus as claimed in Claim 22, wherein the at least one security bar co-operates with the locking arrangement.
24. Security apparatus as claimed in Claim 23, wherein the at least one security bar extends through a bore in a door or window.
25. Security apparatus as claimed in Claim 24, wherein the at least one security bar extends through a bore that is substantially the width or height of a door or window.
26. Security apparatus as claimed in Claim 23, wherein the at least one security bar is mounted on a surface of a door or window.
27. A method of securing an opening including a window or door by attaching the apparatus as claimed in any of claims 1 to 26 to the said opening.
28. An opening including a door or window secured with apparatus as claimed in any of claims 1 to 26.
29. Security apparatus substantially as shown in and described with reference to the drawings.

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**Application No:** GB0803974.5  
**Claims searched:** 29

**Examiner:** Mr Tony Rudge  
**Date of search:** 30 July 2008

**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	1-3 at least	GB2423789 A
X	1 at least	GB2422403 A (PIPER) abstract
X	1-4, 6,7,8 at least	
X	1 and 5 at least	
X	1 at least	
X	1 at least	
X	1-4 at least	
X	1,6 at least	
X	1,2,3,4, and 7-11 at least	
X	1 and 9 at least	

**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	P	Document published on or after the declared priority date but



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combined with one or more other documents of same category.	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<sup>X</sup>:

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

E05B; E05C; E06B

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

EPODOC, WPI

**International Classification:**

Subclass	Subgroup	Valid From
E05C	0019/00	01/01/2006
E05B	0065/00	01/01/2006
E05C	0017/00	01/01/2006
E06B	0009/02	01/01/2006