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(56) Documents Cited
US 5333922 A US 5131701 A US 4560192 A

(58) Field of Search
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(54) Abstract Title
Door security device

(57) A security device for preventing unauthorised entry through an inwardly opening door of a building is described, the device comprising an elongate strut member 14 having means to adjust the length thereof; the strut also having at one end 18 means to engage with a location bracket 12 fixed to a floor area in front of the opening direction of a door; and having at the remote end 17 engaging means to engage with the door at 13 or a doorjamb at 15 adjacent the opening edge of the door; the strut being positionable, in use between two positions: a first position where the strut is rigidly braced against the door when the building is occupied; and, a second position where the strut is rigidly braced against the doorjamb.

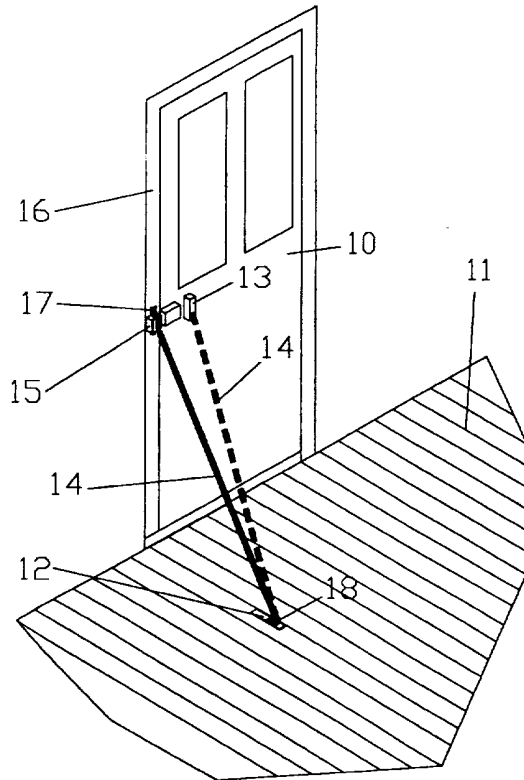


FIG 1.

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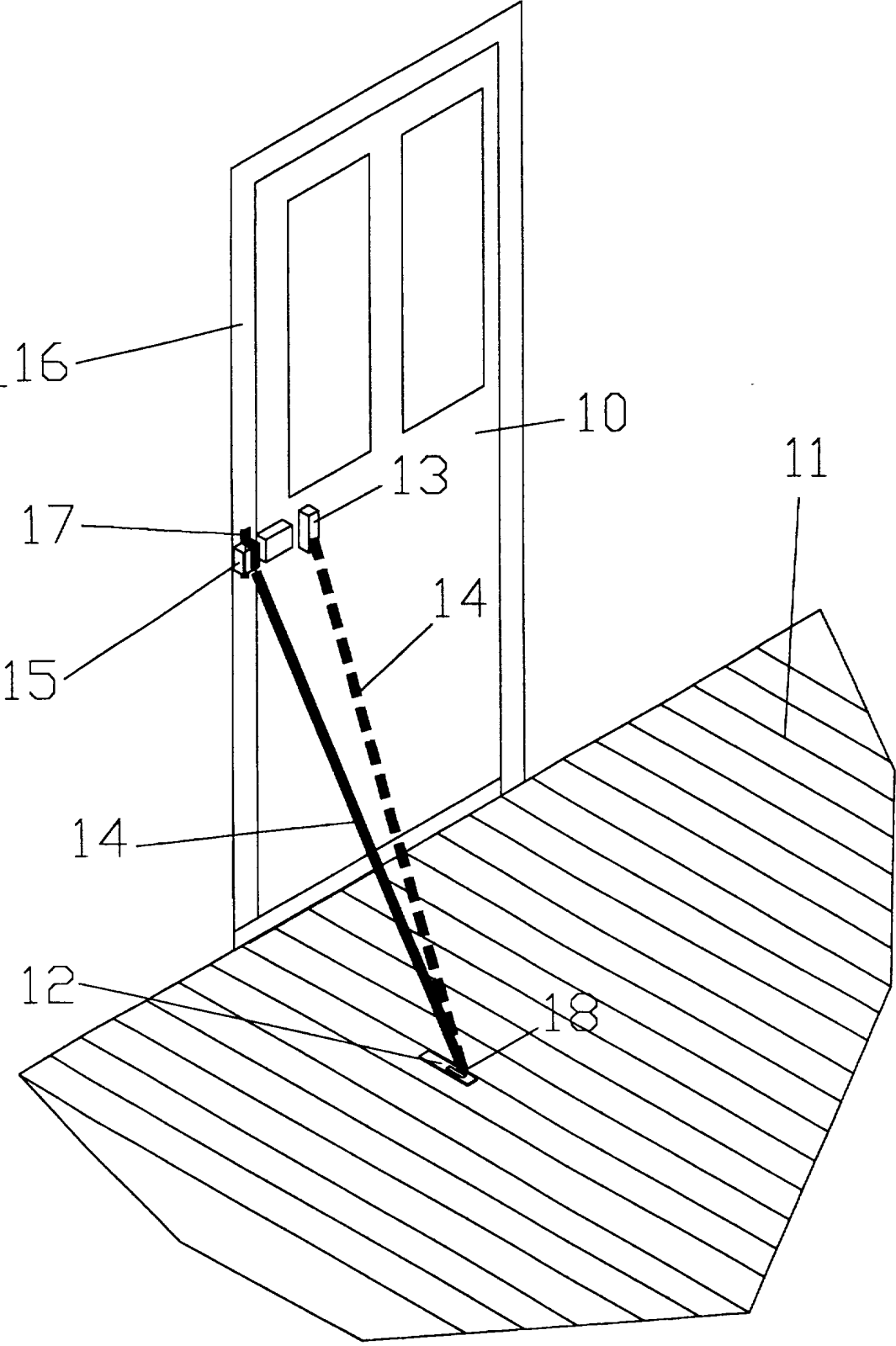


FIG 1.

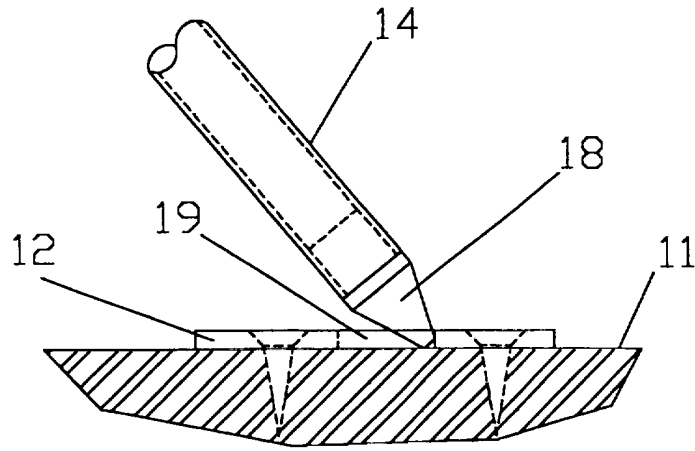


FIG 2.

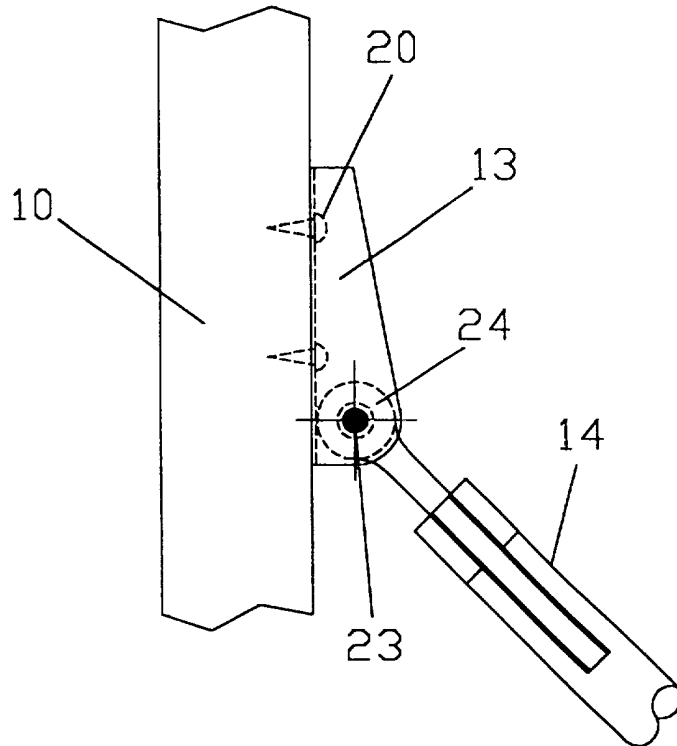


FIG 3.

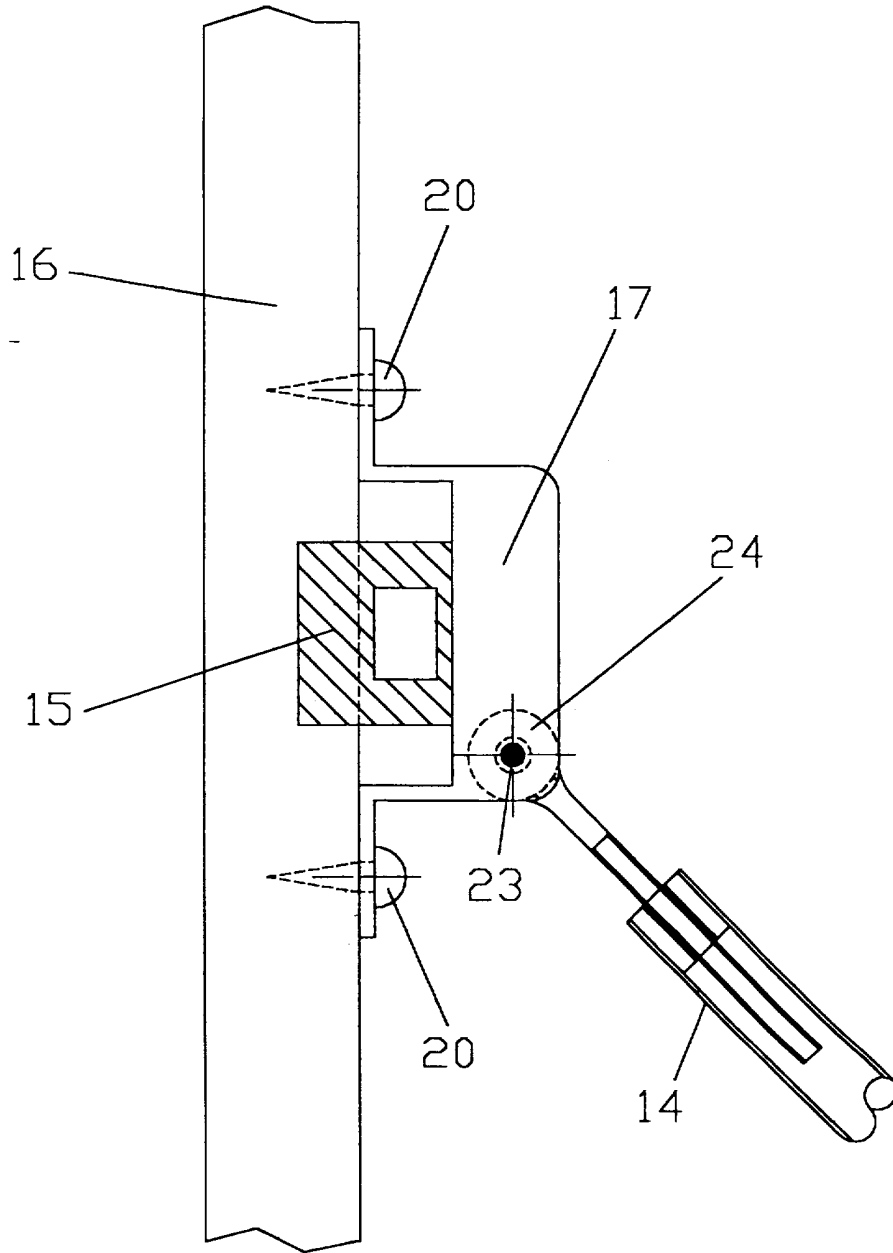


FIG. 4.

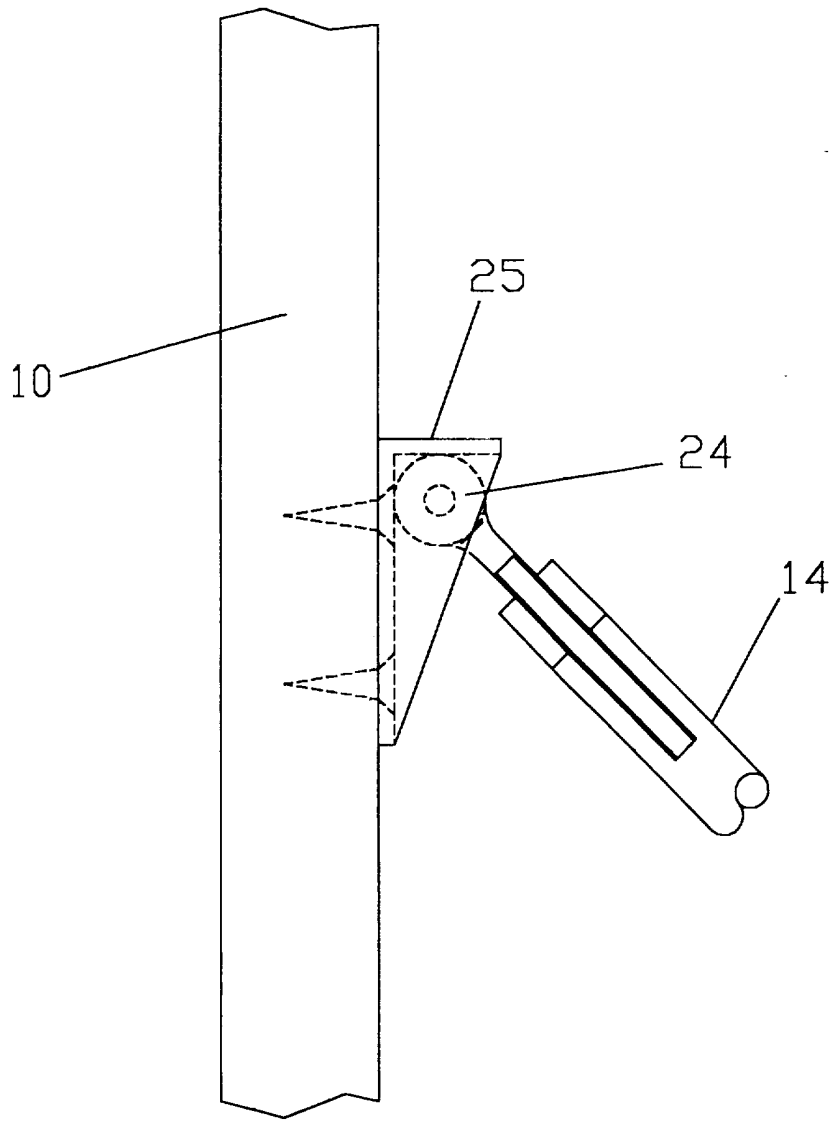


FIG 5.

SECURITY DEVICE

The present invention relates to a security device to prevent unauthorised entry into a building via a door.

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Security devices comprising struts which locate between a bracket fixed to the floor in front of the opening direction of a door and the door itself by means of a "Y" shaped forked support under the door handle or knob for example are well known. Many examples of such devices are known in the prior art.

US patent number 4,563,027 dated 7/1/1986, US No 4,478,168 dated 23/10 1984, US No 4,819,296 dated 11/1/1989, show such devices. However, all of the known devices support a door against unauthorised entry only when the building is occupied. When the building is unoccupied the door may be easily forced since the doorjamb is relatively weak.

It is an object of the present invention to provide a security device which is effective when the building is occupied or unoccupied.

According to the present invention there is provided a security device for preventing unauthorised entry through an inwardly opening door of a building, the device comprising an elongate strut having means to adjust the length thereof; the strut also having at one end means to engage with a location bracket fixed to a floor area in front of the opening direction of a door; and having at the remote end engaging means to engage with the door or a door jamb adjacent the opening edge of the door; the strut

being positionable, in use, between two positions: a first position where the strut is rigidly braced against the door when the building is occupied; and, a second position where the strut is rigidly braced against the doorjamb.

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The strut member may be in the form of a bar having a screw threaded portion to enable the length to be adjustable by rotation about the axis thereof.

10 In one embodiment the lower end of the strut may have a spike or other engaging feature which fits into a recess in a bracket which is fixed to or into the floor to be substantially flush therewith for example. The remote end may have a metal eye for example,
15 which is mounted on a screw-threaded rod, which screws in and out of the brace bar to adjust the overall length thereof. The door may have a saddle bracket fixed thereto with which the eye engages by means of a cotter pin for example when in the first position. Similarly, the adjacent doorjamb may be provided with a similar bracket fixed thereto over the lock keeper and with
20 which the eye engages when in the second position when the building may be unoccupied for example.

One advantage of the security device according to the present invention is that it may be used when the building is either
25 occupied (strut in first position) or unoccupied (strut in second position). Many buildings are broken into when unoccupied by breaking down the doorjamb, which holds the lock keeper, usually fixed to the jamb by only two screws. The doorjamb itself is usually quite weak in this area due to much of the wood being
30 removed to fit the keeper. Thus, the security device of the present invention may fit over the lock keeper and rigidly brace it against being forced. When the security device is in the second position, the door may be opened and closed as normal.

The strut may engage with the door bracket or the saddle bracket round the lock keeper in several ways. An alternative is to use a bracket that doesn't rely on a cotter pin to hold the adjusting eye in place, but instead forms a " U " shape that fits round the eye.

5 The " U " shape bracket can be used on either the door bracket or the saddle bracket on the jamb. The design of the " U " shape bracket has several advantages, the first is to stop the eye bolt turning so that adjustment can be effected, another is to make the fitting and removal of the strut easier.

10

Where the " U " shape bracket, or similar, is used an alternative eyebolt may be used. A standard hexagon headed bolt may be used or a bolt having a flattened end instead of a hexagon may be used. Any bolt or threaded bar that has a device that will stop the
15 bolt from turning so that adjustment can be effected.

15

Where the strut length is adjustable by virtue of rotation about it's own axis, the door and the doorjamb are both more securely supported by virtue of the strut being able to be rigidly braced
20 thereagainst. Doors are more easily forced open and jambs more easily broken when there is a small amount of movement available to the person attempting to break in. The prior art devices allow such movement whereas the security device of the present invention does not.

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In order that the present invention may be more fully understood, an example will now be described by way of illustration only with reference to the accompanying drawings, of which:

30 Figure 1 shows a perspective view of a security device according to the present invention wherein the strut is shown in a first position (by dashed lines) and a second position;

Figure 2 shows a schematic view of a floor engagement means;

Figure 3 shows a cross section through part of a door when the device is in the first position;

Figure 4 shows a cross section through part of a doorjamb when
5 the device is in the second position.

Figure 5 shows a cross section through part a door when the device uses a " U " shape bracket.

10 Referring now to the drawings and where the same features are denoted by common reference numerals. Figure 1 shows a view of a door 10 set in a frame having a jamb 16 adjacent the opening edge of the door. The bracket 13 is fixed to the door 10 where strut 14 is shown in a dashed line. The other end of the strut 14
15 locates in a plate 12 that is fixed to the floor 11. Strut 14 can then be rotated to allow any play to be taken up. When strut 14 is located in bracket 13 the building is occupied, but when the building is unoccupied strut 14 is located in bracket 17 which in turn is fitted around the lock keeper15. When the strut 14 is
20 located in this position the is still allowed to open and close allowing authorised access through the door, however when the door is locked from the outside the present invention gives the lock keeper much greater strength.

25 Figure 2 shows a schematic view of how the strut 14 complete with bar stop 18 is engaged in the floor plate 12, which in turn is fixed to floor 11. The bar stop 18 is conical to allow the bar stop 18 and strut 14 to rotate, this allows any play to be taken up at the threaded portion of the strut 14. The strut 14 and bar stop 18
30 act on the floor plate 12 in a downward motion, this action puts very little force on the fixing screws and makes good use of the inherent strength of the floor 11.

Figure 3 shows a cross-section through part of a door when the device is in the first position i.e. when the building is occupied. Door bracket 13 is fixed to door 10 using screws 20. The eye-bolt 24 is threaded and is screwed into strut 14, the eye part of eye-bolt 24 fits into a slot in the centre of door bracket 13. A cotter pin 23 or similar is located through the sides of door bracket 13 and through the centre of eye-bolt 24. Strut 14 and eye-bolt 24 are both threaded thus allowing strut 14 to effectively increase in length which subsequently removes any play between the floor 11 and the door 10.

Figure 4 shows a cross-section through part of a doorjamb when the device is in the second position i.e. when the building is unoccupied. Bracket 17 is fixed to doorjamb 16 using screws 20. Strut 14 and eye-bolt 24 are connected to bracket 17 using cotter pin 23, this has the effect of strengthening the lock keeper 15 so that it doesn't just rely on its own fixings. The device adds strength to the weakest part of the doorjamb 16.

Figure 5 shows an alternative door bracket 25. This bracket 25 shows how the eye-bolt can be located without using a cotter pin, the bolt is simply held in the centre of the bracket and is prevented from turning by the two faces of the bracket. The same principle can be applied to the bracket on the doorjamb.

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CLAIMS

1. A security device for preventing unauthorised entry through an inwardly opening door of a building, the device comprising of an elongate strut member having means to adjust the length thereof; the strut also having at one end means to engage with a location bracket fixed to a floor area in front of the opening direction of a door; and having at the remote end engaging means to engage with the door or a doorjamb adjacent the opening edge of the door; the strut being positionable, in use, between two positions: a first position where the strut is rigidly braced against the door when the building is occupied; and, a second position where the strut is rigidly braced against the doorjamb.
2. A security device according to claim 1 wherein the strut member is in the form of a bar.
3. A security device according to either claim 1 or claim 2 wherein the strut member has a screw threaded portion to enable the length to be adjustable by rotation about the axis thereof.
4. A security device according to any one preceding claim wherein the lower end of the strut has a spike or other engaging feature, which fits into a recess in a bracket which, is fixed to or into the floor.
5. A security device according to claim 4 wherein the bracket is substantially flush with the floor.
6. A security device according to any one preceding claim wherein the end of the strut adjacent the door, in use, has a metal eye to engage with engagement means on the door and doorjamb.
7. A security device according to claim 6 wherein the eye is mounted on a screw threaded rod, which screws in and

out of the strut member to adjust the overall length thereof.

- 5
8. A security device according to either claim 6 or 7 wherein the door has a bracket fixed thereto with which the eye engages.
9. A security device according to claim 8 wherein the eye engages with the bracket by means of a pin through the bracket and eye.
10. A security device according to any one preceding claim wherein the doorjamb is provided with a bracket fixed thereto over a lock keeper and with which the strut member engages when in the second position.
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11. A security device for preventing unauthorised entry through an inwardly opening door of a building
- 15
- substantially as hereinbefore described with reference to the accompanying description and drawings.

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Application No: GB 9906123.6
Claims searched: 1-10

Examiner: Philip Silvie
Date of search: 23 June 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.Q): E2A (ACMA)

Int CI (Ed.6): E05C (19/00, 21/00)

Other: Online: EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 5 333 922 A (JONES) see fig. 1	1 at least
X	US 5 131 701 A (SURE-LOCK) see fig. 1	1 at least
X	US 4 560 192 A (WILSON) see fig. 2	1 at least

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