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(11)

**EP 0 810 341 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**03.12.1997 Bulletin 1997/49**

(51) Int Cl.6: **E05D 11/00**

(21) Application number: **97201649.7**

(22) Date of filing: **02.06.1997**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC  
NL PT SE**

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(30) Priority: **31.05.1996 NL 1003244**

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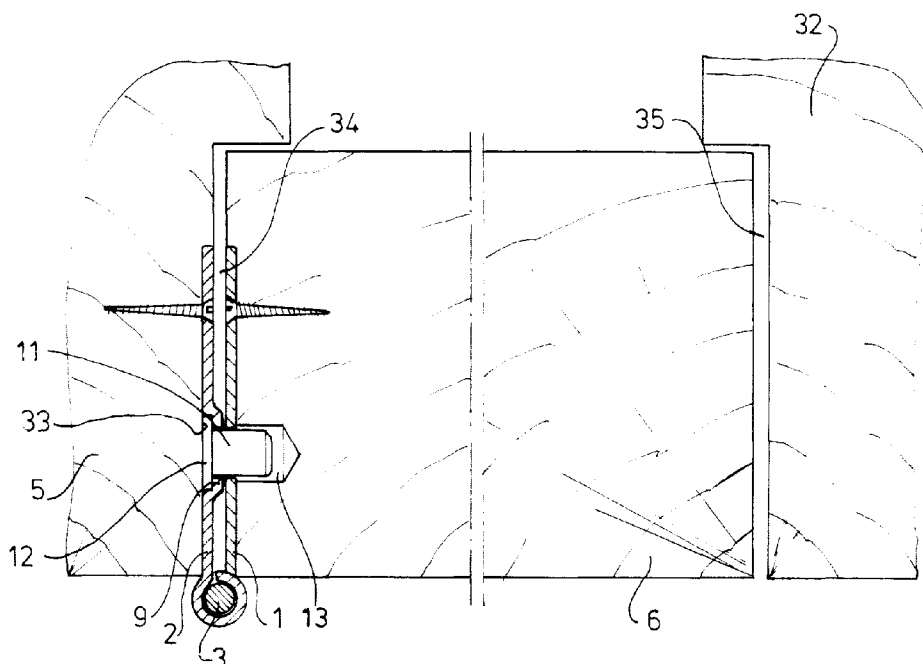
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**(54) Security set for a panel and frame**

(57) An assembly with a panel (6), such as a door or a window, which is rotatable relative to a frame (5) and a security device comprises an opening (13) made in the frame or panel (6) and a projection (11) which is fixed at the other thereof and in the closed position of

the panel extends into said opening (13). The assembly comprises at least one plate (2) with a positioning hole (7) into which the projection (11) fits, which plate is fixed to the panel or frame. The projection can have a widened base (12) which is hooked behind the plate (2).

fig -1



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## Description

The invention relates to a set for an assembly with a frame and a panel which is hinged relative thereto, which set comprises two leaves which each have openings for accommodating fixing screws, and an auxiliary opening, one of which leaves can be fixed to the frame, and the other to the panel, in such a way that in the position of frame and panel swung towards each other said leaves lie opposite each other, which auxiliary openings lie in line with each other in the position in which the leaves lie opposite each other, and a security lug which has a widening and a pin, which lug can be accommodated in the auxiliary openings.

Such a set, designed with a butt hinge, is known from US-A-4085650. The butt hinge belonging to this set can be used either with or without a security screw with widened head, so that in one case a butt hinge which is not secured against burglary and in the other case a hinge which is secured against burglary is obtained.

In the latter case there is in fact no point in removing the hinge pin; owing to the locking action obtained by the fact that the head of the security screw projects into the recess of the opposite leaf of the hinge, the panel concerned cannot be removed from its frame.

When the known butt hinge is used as a burglar-proof hinge, the security screw is screwed into the underlying material of the frame, while the collar is tightened in the corresponding auxiliary hole.

This known construction has various disadvantages. First of all, the screw can easily be screwed out when the panel is in the open position, as a result of which the security of the panel when closed has been lost. This produces a false sense of security, which is all the more insidious because the user does not notice for quite a long time that the security device has been tampered with. Furthermore, when the security screw is used, the bearing capacity of the hinged connection is reduced, in view of the fact that two fixing screws have to be sacrificed.

A further disadvantage is that, in order to obtain reasonable stability for the security screw, the latter has to be screwed to quite a depth into the frame. Such great depth is not always present; in addition, security devices which are not fully screwed in are not very stable. Moreover, the height of the projecting part (the bolt) must be limited, with the result that the security is not very good.

The object of the invention is therefore to provide a security set which does not have these disadvantages. That object is achieved by the fact that the widening of the security lug has a transverse measurement which is larger than the largest transverse measurement of each auxiliary opening, in such a way that the lug with widening can be hooked behind one of the leaves at the side facing away from the other leaf.

The fitted position, i.e. the position in which one leaf of the hinge is fixed to a panel, and the other leaf to a

frame, may be unsecured or secured, as desired. In the first case, the security lug is dispensed with, and in the second case it is simply inserted beforehand with the widening behind the leaf in question, and screwed down together with that leaf.

The set can be in the form of a butt hinge or lift-off hinge. The advantage in that case is that the butt hinge or lift-off hinge is universal and that the security lug can be fitted at the same time without extra time and effort. Moreover, the lug fitted in this way is very stable; it is wedged firmly with its relatively large widening between the leaf and the frame. Another great advantage is that the lug is virtually impossible to remove; to remove it, the leaf would actually have to be detached completely, which is time-consuming and causes noticeable damage.

The pin preferably fits tightly into the auxiliary openings. Such a tight fit further benefits the stability.

According to a preferred embodiment, at least one of the leaves has at its side facing away from the other leaf a recessed area around the auxiliary opening, in such a way that the collar can be accommodated in the recessed area. The collar in this case is accommodated tightly in the recessed area, which produces even greater stability.

In addition, the leaf provided with a recessed area can have at its side facing the other leaf an elevated area surrounding the auxiliary opening. In the closed position of the panel, said elevated area rests virtually against the other leaf. The advantage of this is that the gap between the two leaves is retained, even if the hinge pin is removed in an attempt at forcing. This means that the gap opposite, which lies near the panel closure or panel lock cannot easily be made larger, so that inserting a jemmy there becomes more difficult.

Although a butt hinge or lift-off hinge is mentioned in the above, the set according to the invention can also have two loose leaves. In that case the set can be fitted as a burglarproof bolt, in addition to the hinges by means of which the panel is suspended from the frame.

In both variants (i.e. both the hinge and the burglarproof bolt) the leaves protect the underlying wood material of frame and panel from giving way as a result of the great forces exerted on the security lug during any attempt at forcing.

The invention will be explained in greater detail below with reference to a number of exemplary embodiments shown in the figures.

Figure 1 shows an assembly according to the invention, with a hinge.

Figure 2 shows a butt hinge according to the invention.

Figures 3 - 6 show alternative embodiments.

The butt hinge according to the invention shown in Figures 1 and 2 comprises two leaves 1, 2, which interact hingedly in the usual manner by means of hinge pin 3. The leaves 1, 2 are fixed by means of screws 4 respectively to a fixed part, such as a frame 5, and a mov-

ing part, such as a door, shutter, window and the like 6.

According to the invention, holes 7, 8 are provided in the leaves 1, 2. Hole 7 is situated in the centre of the dimpled part 9 of the leaves 1. It is also possible for both holes 7, 8 to be dimpled.

During the fitting of leaf 1 on the frame 5 the lug, which is indicated in its entirety by 11, is placed in the hole 7 of leaf 1 in such a way that its widened base 12 remains hooked behind said leaf. When the leaf 1 is being screwed down on the frame 5, the lug 11 with its base 12 is consequently sturdily wedged in position. Of course, the lug can also be fixed on the door or the window 6. It is clear that, if desired, the lug 11 could also be fixed in the recessed part 10 of the leaf 2.

The base 12 is a cylindrical shape which fits tightly into the correspondingly shaped recess 33 in the dimpled part.

In the closed position of the panel 6 the dimpled part 9 rests virtually against the opposite leaf 1. The result of this is that the gap 34 cannot be reduced, not even if the hinge pin 3 is removed. The gap 35 situated opposite consequently cannot be increased at the expense of gap 34 if any attempt at forcing is made (when hinge pin 3 is removed). This makes the insertion of, for example, a jemmy extremely difficult, so that forcing of the panel is tricky.

A hole 13 is made in door or window 6, concentrically relative to the hole 8 in the leaf 2, for accommodating the lug 11 in the closed position of door or window 6.

In the embodiment of Figure 3, a lug 14 which, in addition to a widened base 12, has an external screw thread 15 is used. This screw thread 15 fits into a corresponding threaded hole 16 in leaf 17 of a butt hinge.

In the embodiment of Figure 4, a lug 19 which is integral with a wood screw 20 is used. Said wood screw 20 is screwed into the panel or frame 21, while the lug 19 itself projects through a correspondingly shaped hole 22 in the leaf 23 of a butt hinge.

In Figure 5, a lug 24 which has a through-opening 25 with a step 26 is used. The head of the wood screw 27, which is screwed into panel or frame 28, rests on the step 26. The lug 24 is accommodated in the hole 22 of leaf 23 of a butt hinge.

In the embodiment of Figure 6, the lug 29 is in the form of a steel pin which is known per se, and is also called a burglarproof bolt. This pin 29 has a part with a number of barbed ribs 30, which part is driven into a previously drilled hole 31 in the frame or panel 32. The steel pin 29 projects through a hole 22 of the leaf 23 of a butt hinge.

In the embodiments of Figures 3 - 6, the security lug is also hooked with its base 12 behind the corresponding plate 17, 23 respectively.

The known pin 29 or burglarproof bolt works much better in this way: it is not only well protected against forcing attempts by the leaf 23, but is also retained well by it in the lateral direction.

In Figures 3 - 6, the other leaf (not shown) is pro-

vided with a corresponding hole, as shown in Figures 1 and 2, in which the lug 14, 19, 24, 29 is accommodated when the panel concerned is closed.

Although the figures relate to a set with a butt hinge, the invention also comprises an embodiment in which the set comprises two loose plates with a security lug. This last embodiment provides a better burglarproof bolt, in which the plates protect the underlying material of frame and panel from tearing.

## Claims

1. Set for an assembly with a frame (5) and a panel (6) which is hinged relative thereto, which set comprises two leaves (1, 2) which each have openings for accommodating fixing screws, and an auxiliary opening (7, 8), one of which leaves (1, 2) can be fixed to the frame (5), and the other to the panel (6), in such a way that in the position of frame (5) and panel (6) swung towards each other said leaves (1, 2) lie opposite each other, which auxiliary openings (7, 8) lie in line with each other in the position in which the leaves (1, 2) lie opposite each other, and a security lug (11) which has a widening and a pin, which lug can be accommodated in the auxiliary openings (7, 8), characterized in that the widening (12) has a transverse measurement which is larger than the largest transverse measurement of each auxiliary opening (7, 8), in such a way that lug (11) with the widening (12) can be hooked behind one of the leaves (2) at the side facing away from the other leaf (1).
2. Set according to Claim 1, in which the pin fits tightly into an auxiliary opening (7, 8).
3. Set according to Claim 1 or 2, in which at least one of the leaves (2) has at its side facing away from the other leaf (1) a recessed area (9) around the auxiliary opening (7), in such a way that the widening (12) can be accommodated in the recessed area (9).
4. Set according to Claim 3, in which the widening (12) can be accommodated tightly in the recessed area (9).
5. Set according to Claim 3 or 4, in which the leaf (2) provided with a recessed area has at its side facing the other leaf (1) an elevated area surrounding the auxiliary opening (7).
6. Set according to Claim 3, 4 or 5, in which the widening (12) is annular and has a cylindrical periphery, and the recessed area (9) has a correspondingly shaped recess.

7. Set according to one of the preceding claims, in which the security lug (14) has a threaded end (15) which is screwed into a correspondingly threaded hole (16) in the plate (17). 5
8. Set according to Claim 1, in which the security lug (19) has a threaded end (20) which is screwed into the panel or frame (5). 10
9. Set according to Claim 1, in which the security lug (24) has a through-hole (25) in which a screw (26) screwed into the panel or frame is accommodated. 15
10. Set according to Claim 1, in which the security lug (29) has a drive-in end which is driven into a hole (31) in the panel or frame. 20
11. Set according to one of the preceding claims, in which the two leaves (1, 2) are hingedly connected (3) to each other, forming a butt hinge or lift-off hinge. 25

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fig - 1

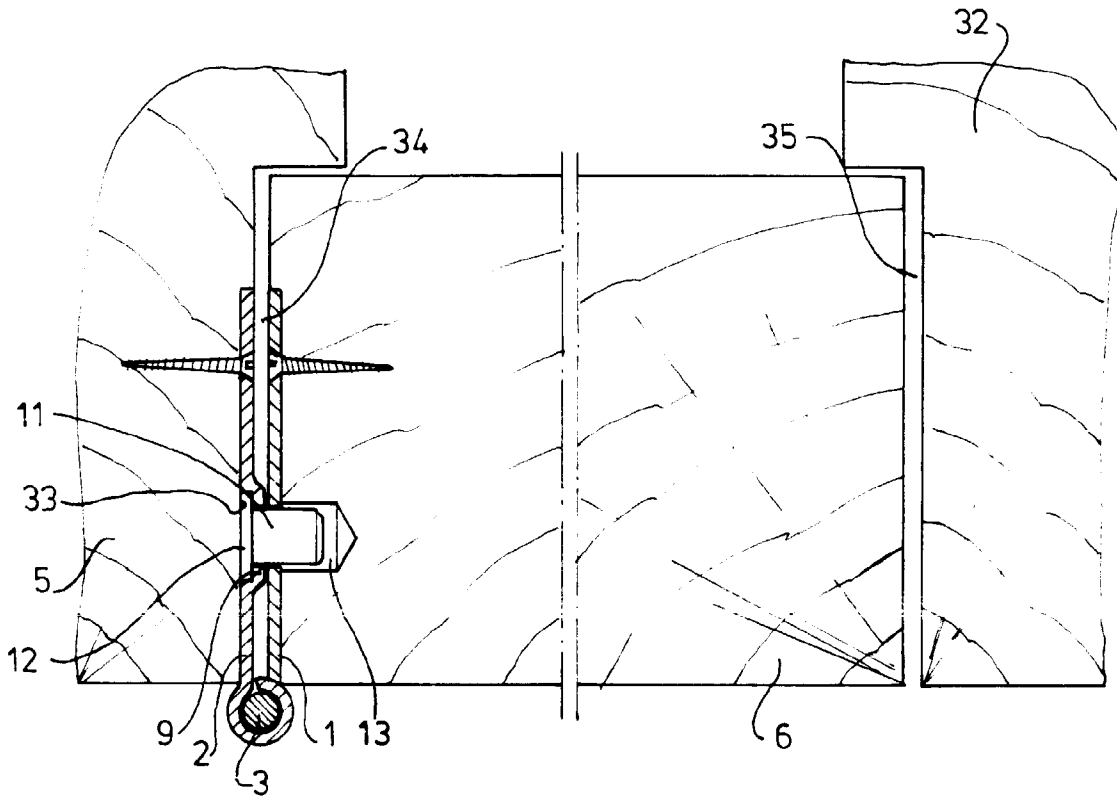


fig - 2

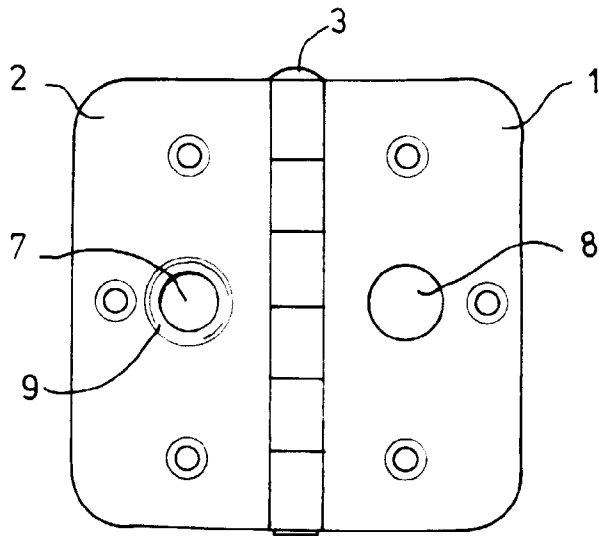


fig-3

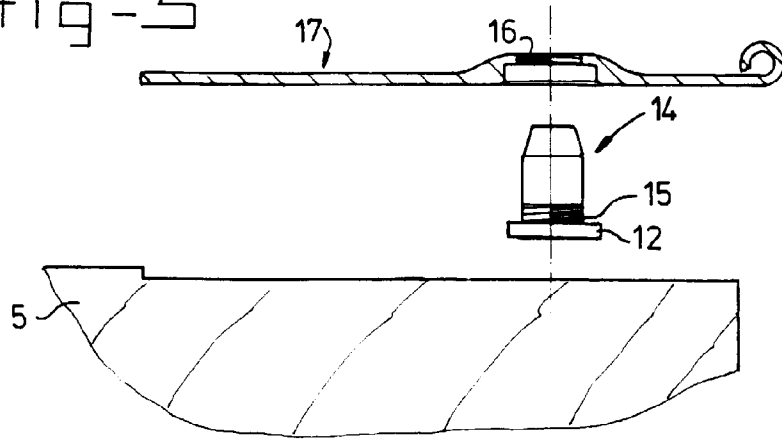


fig-4

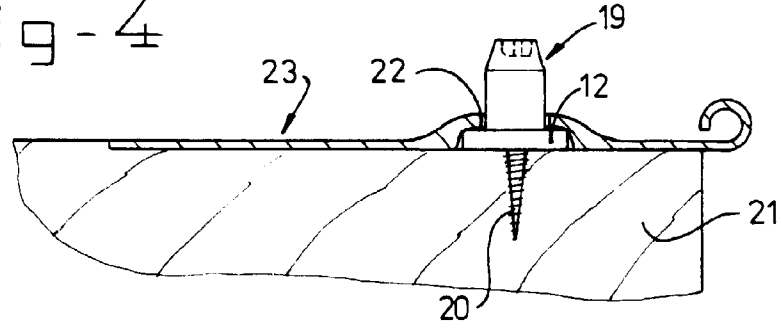


fig-5

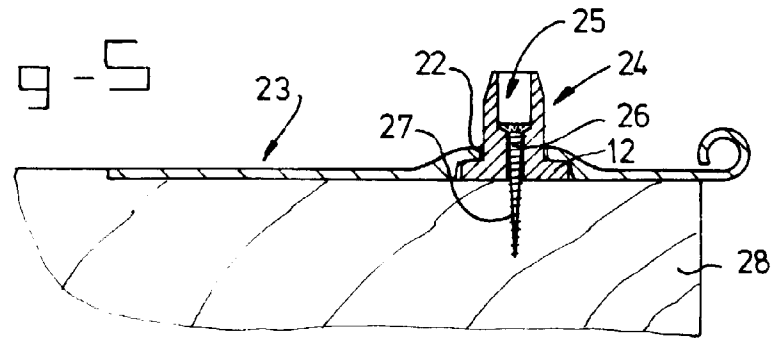
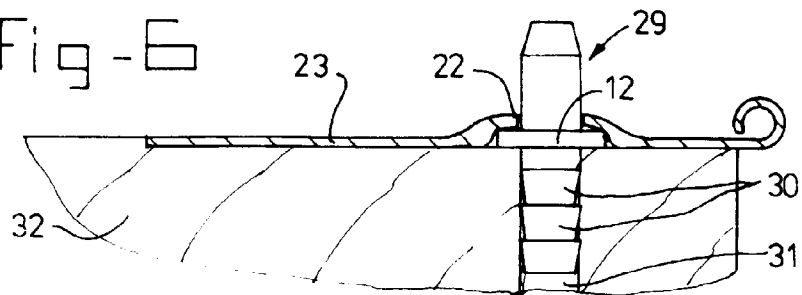


fig-6





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EUROPEAN SEARCH REPORT

Application Number  
EP 97 20 1649

DOCUMENTS CONSIDERED TO BE RELEVANT				
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)	
Y	DE 41 17 014 A (ZABRANSKY) * column 3, line 50 - line 57; figures * ---	1-4,6,11	E05D11/00	
Y	DE 34 06 594 A (ROHRBACHER) * page 3, line 24 - page 4; figures * ---	1-4,6,11		
A	CH 541 735 A (IFFLAND ET AL) 31 October 1973 * the whole document * ---	1		
A	GB 2 127 892 A (WORCESTER PARSONS LTD) * page 1, line 88 - line 92; figures * ---	6		
A	US 4 057 873 A (BURSANI) 15 November 1977 * column 2, line 34 - line 35; figure 1 * ---	7		
D,A	US 4 085 650 A (FLYNN) 25 April 1978 * the whole document * ---	8		
A	FR 2 468 711 A (PICARD) 8 May 1981 * page 5, line 9 - line 11; figures * ---	9		
A	FR 2 270 425 A (AUFFRET) 5 December 1975 * page 1, line 28 - line 32 * * page 2, line 13 - line 25; figures * -----	10		
The present search report has been drawn up for all claims				TECHNICAL FIELDS SEARCHED (Int.Cl.6)
				E05D
Place of search	Date of completion of the search	Examiner		
THE HAGUE	10 September 1997	Van Kessel, J		
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		& : member of the same patent family, corresponding document		

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