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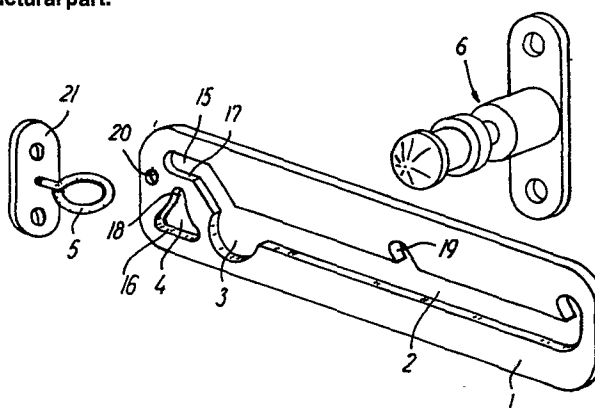
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⑤④ **Security retaining means for a window or a similar pivotal structural part.**

⑤⑦ The securing means has a movable hasp member (1), an eye (5) and a pin-shaped member (6).

The hasp member (1) and the eye (5) are inseparably, loosely interconnected in an aperture (4) in the hasp member (1), the movement of which is guided by the engagement of a slot (2) provided with different notches (15, 19) in the hasp member (1) with the bottom (8) of an annular groove (7) on the pin member (6) to obtain the different positions of the window.

The release of the hasp member (1) from the pin member (6) can be obtained only just before the locked position of the window, where the hasp member (1), owing to an enlargement (3) provided in the slot (2), can be lifted off over a head (9) on the pin member (6), while an unintended unhooking of the hasp member (1) from the exterior will be impossible, inter alia, on account of the unsteady guiding of the hasp member (1) by the eye (5).



Security retaining means for a window or a similar
pivotal structural part

The invention relates to a security retaining means
5 for a window or a similar pivotal structural part for
preventing intrusion, which means comprises a movable
hasp member having a closed longitudinal slot and situated
at one end outside the slot a closed aperture for an
eye to be fastened to the window sash, and a pin-shaped
10 member to be secured to the frame and having an annular
groove, the bottom and sides of which guide the movement
of the hasp member in the slot.

Retaining means of this kind have to meet two contradictory requirements, in that they must allow an easy
15 disconnection of the hasp member from the pin member in
case of fire, i.e. a separation of the two parts so that
the window can be fully opened, and prevent a disconnection
from being operated from the exterior.

In the known retaining means, apparently these two
20 requirements are met, the geometrical structure being
designed so that the head of the pin member fixed to the
frame is so large that it cannot pass through the longitudinal
slot except in the closed position of the window,
where manual contact with the movable hasp member is not
25 possible from the exterior.

It has proved, however, that dexterous people are
able to disconnect the hasp in the closed position of
the window. This happens by fastening a thread to the
movable hasp member when the window is in the opened
30 position, whereafter the window is closed with the
thread passing between frame and sash at a suitable
place so that a pull in the thread results in the desired
release.

Known securing means are, moreover, often rather
35 complicated and they require a different design depending
on whether they are to be used for side-hung or

top-hung windows.

It is an object of the present invention to provide a retaining means of simple construction which can be used for left side-hung as well as right side-hung windows and top-hung windows, and which affords more security against an opening from the exterior by means of a thread fastened to the movable hasp member.

According to the invention, this is achieved in that the aperture in the movable hasp member in which the eye engages is large in relation to the cross section of the eye in and about the aperture, that the slot at a suitable place has an enlargement of such a size that the free end of the pin member can be centered in and pass through the enlargement only when the hasp member is lifted off in the closed or almost closed position of the window and if the eye does not abut against any of the sides of the aperture or abuts at most against one of them, and that the bottom and sides of the annular groove are arranged for loosely guiding the hasp member, while the free end of the pin passes tightly through the enlargement and is so long as to just allow the lifting off of the hasp member.

By giving to the aperture in the movable hasp member such shape, size and position that the eye is not guided by the wall of the aperture in the position in which the movable hasp member can be disconnected from the pin member, such indetermination is introduced that a guiding of the movable hasp member from the exterior by means of a thread fastened to the hasp member is made practically impossible. By making the annular groove of the pin member sufficiently broad in relation to the thickness of the movable hasp member and, furthermore, suitably deep, the movable hasp member shows a tendency to tilt, so that the bounding wall around the enlargement in the slot is caught by the back of the head of the pin member. Thus, as a result there are two indetermination factors for the movable hasp member, viz. the possibility of displacement in the axial direction and the possibility

of rotation about the axis.

The shape of the movable hasp member makes it possible to use one and the same member for left-hung, right-hung or top-hung windows. This reduces the cost of manufacture and storage, and affords for the user the advantage of requiring no separate care in the mounting which is normally performed by unskilled persons.

The invention will be explained in the following in more detail with reference to the drawing, in which

Fig. 1 is a perspective view of an embodiment of a security retaining means according to the invention, the parts being separated,

Fig. 2 a plane view on a larger scale of the end of a hasp member of Fig. 1 provided with aperture for an eye, and

Fig. 3 a side view of a pin member for the retaining means of Fig. 1.

The embodiment of a security retaining means according to the invention which is shown in the drawing can be used in connection with any pivotal structural parts, such as windows, doors, shutters and hatches, which can be opened from the interior but only at an angle small enough to prevent the passage of a person. The retaining means is, however, arranged so as to allow a release and total opening, but only from the interior, as explained in the following on basis of an example where the retaining means is mounted in the sash and frame of a window.

The retaining means comprises three co-operative parts which are shown apart in Fig. 1, viz. a movable hasp member 1, an eye 5 secured to the window sash and arranged to support the hasp member 1, and a pin member 6 secured to the window frame and on which the hasp member 1 is to be hooked.

The hasp member 1 which, for instance, may be manufactured by punching of a plate of suitable thickness has a longitudinal slot 2 showing an enlargement 3 and, situated outside the slot 2, a closed aperture 4 for the eye 5 which may be adjustable. The pin member 6 has an

annular groove 7, the bottom 8 of which co-operates with the slot 2 in the hasp member 1 when said member is hooked on the pin member 6. A head 9 on the pin member 6 co-operates with the enlargement 3 in the hasp member 1 during engagement and disengagement of the hasp member 1. The aperture 4 is situated at one end of the hasp member 1 and has a large opening in relation to the cross section of the eye in and around the aperture 4. This measure results in the eye being in contact with the wall of the aperture only at a point or a line or not at all in the disengagement situation where the enlargement 3 just can pass the pin head 9. This unsteady guiding has for its object to make the centering of the head 9 in the enlargement 3 still more indeterminate than it is as a result of the size of the pin at the bottom 8 in relation to the enlargement 3. The enlargement 3 is so positioned in relation to the aperture 4 that in the position permitting release, the window will have to be closed, but not tightened against the frame, in order to hamper undesirable unhooking attempts from the exterior by means of a thread fastened to the hasp member 1 when the window is in the opened position and running between sash and frame at a suitable place in the closed position of the window, so that a pull of the thread could result in the desired unhooking. Said unhooking is also rendered difficult by the fact that the pin head 9 fits tightly in the enlargement 3.

The unhooking is rendered still more difficult by placing the enlargement as shown in Figs. 1 and 2, as the hasp member 1 is thereby inclined to tilt, because its centre of gravity lies above a line connecting the centre of the pin and of the cross section of the eye. The tilting is, furthermore, dependent on the width of the annular groove 7 which is chosen in suitable relation to the thickness of the hasp 1.

The placing of the enlargement 3 shown in Fig. 2 produces three corners 10, 11 and 12, which in co-operation with an additional annular groove 13 situated

closer to the free end of the pin 6 render the last part of the unhooking difficult, as it again requires a centering of the pin head 9 in the enlargement and, furthermore, a rotation of the hasp 1, so as to be brought in the median plane of the annular groove 13 which is substantially parallel to the median plane of the annular groove 7. The thickness of the pin 14 at the bottom of the annular groove 13 is somewhat larger than that of the pin at the bottom 8 in order to make sure that the user will place the hasp 1 in the annular groove 7 and achieve, thereby, optimal security. The length of the pin head 9 just allow the hasp 1 to be swung free of said head during the unhooking movement.

In a suitable embodiment, the aperture has a substantially rectilinear abutment surface 16 for co-operating with the eye 5 when the pin member 6 is introduced into a locking notch 15 which, as shown in Fig. 2, is situated in oblique continuation of the slot 2 opposite to the abutment surface 16 in relation to the centre line of the slot 2. The abutment surface 16 or the side 17 of the locking notch 15 which is closest to the aperture 4 lie obliquely in order to obtain a clamping effect known per se, when the hasp is moved to the stable locking position.

The aperture 4 is provided with a track 18 substantially at right angles to the slot 2. The track 18 is positioned at such a distance from the enlargement 3 that, as mentioned above, the eye 5 is prevented from being in engagement with the track 18 while the pin 6 is centered in the enlargement 3 in the closed or almost closed position of the window. The track 18 and the eye 5 are arranged for totally or partly clearance-free engagement with each other in order to avoid knocking of the parts due to gusts of wind on the window.

In a preferred embodiment, the hasp 1 is provided with one or more stop notches 19 positioned obliquely in relation to the slot 2 on the same side of said slot as the locking notch 15, having approximately the same

inclination as the notch 15 and arranged for totally or partly clearance-free engagement with the bottom pin 8 in order to avoid knocking of the parts due to gusts of wind on the window. The oblique stop notches 19 result
5 in the retaining means being also applicable to top-hung windows, as the weight of the window will maintain the bottom pin in abutment against the bottom of one of the stop notches. The first notch 19 after the enlargement 3 is so positioned that the weight of the hasp 1 between
10 this notch 19 and the aperture 4 is somewhat higher than the weight of the opposite part for additional increase of the pressure in the track 18 and the stop notch 19. In a hole 20 at the end of the hasp 1 it is possible to mount a (not shown) locking member which can be brought
15 in abutment against the window sash or a fitting plate 21 on the eye 5 for further securing of the locking position. The distance between the eye 5 and the pin member 6 may be adjustable so that the clamping effect between the window sash and the frame or between the window sash
20 and a tightening strip placed on the frame can be adjusted after mounting the fitting or the tightening strip.

If the window should open fully from the interior, for example because it is desired to use it as an emergency exit in case of fire, the unhooking of the hasp 1
25 is performed without difficulty, as the hasp 1 can easily be guided in the longitudinal direction and be prevented from tilting when held between the fingers, and the only thing to take care of is, therefore, to make the hasp 1 catch the pin head 9 in the enlargement 3.

30 The parts of the retaining means are simple to manufacture, e.g. by punching and automatic turning, so that the cost of manufacture of the means is low.

Mounting may be performed by unskilled persons, and the retaining means can be used for right-hung, left-
35 hung and top-hung windows, and it is not necessary either to make, for instance, cuts in tightening strips, if any, in the frame.

P A T E N T C L A I M S

1. A security retaining means for a window or a similar pivotal structural part for preventing intrusion which means comprises a movable hasp member (1) having a closed longitudinal slot (2) and situated at one end outside the slot a closed aperture (4) for an eye (5) to be fastened to the window sash, and a pin-shaped member (6) to be secured to the window frame and having an annular groove (7), the bottom (8) and sides of which guide the movement of the hasp member (1) in the slot (2), characterized in that the aperture (4) is large in relation to the cross section of the eye (5) in and about the aperture, that the slot (2) at a suitable place has an enlargement (3) of such a size that the free end of the pin member (6) can be centered in and pass through the enlargement (3) only when the hasp member (1) is lifted off in the closed or almost closed position, and if the eye (5) does not abut against any of the sides of the aperture (4) or abuts at most against one of them, and that the bottom (8) and sides of the annular groove (7) are arranged for loosely guiding the hasp member (1) while the free end of the pin (6) passes tightly through the enlargement (3) and is so long as to just allow the lifting off of the hasp member (1).

2. A retaining means as claimed in claim 1, characterized in that the aperture (4) comprises a track (18) substantially at right angles to the slot (2) and positioned at such a distance from its enlargement (3) that the eye (5) cannot engage with the track (18) when the pin is centered in the enlargement (3), and that the track (18) is arranged for totally or partly clearance-free engagement with the eye (5).

3. A retaining means as claimed in claim 1 or 2, characterized in that the aperture (4) is, with a view to locking the window, provided with a substantially rectilinear abutment surface (16) for co-operating with the eye (5) in such a manner that a rotation of the hasp

member (1) about the pin at the bottom (8) when this pin is introduced into a locking notch (15) situated in oblique continuation of the slot (2) and opposite to the abutment surface (16) in relation to the centre line of the slot (2) brings the hasp member (1) in a stable locking position, while at the same time the window is drawn tight against the frame.

4. A retaining means as claimed in claim 3, characterized in that the enlargement (3) is positioned at the same end of the slot (2) as the locking notch (15) and at such a distance from said notch (15) that the window sash abuts against or almost touches the window frame when the pin (6) is centered in the enlargement.

5. A retaining means as claimed in any of the preceding claims, characterized in that between the enlargement (3) and the opposite end of the slot, provision is made of one or more stop notches (19) on the same side of the centre line of the slot (2) as the locking notch (15), substantially at right angles to the slot (2) and arranged for totally or partly clearance-free engagement with the bottom pin (8) of the annular groove (7) for securing the window in one or more open positions, and that the first notch (19) after the enlargement (3) is positioned so that the weight of the part of the hasp member (1) situated between this notch (19) and the aperture (4) is somewhat higher than the weight of part of the hasp member (1) projecting beyond the pin.

6. A retaining means as claimed in any of the preceding claims, characterized in that the pin (6) is provided with an additional annular groove (13) situated closer to the free end of the pin.

7. A retaining means as claimed in any of the preceding claims, characterized in that at the end of the hasp member (1) where the locking notch (15) is positioned provision is made of a locking means which can be brought into abutment against the window sash or a fitting plate (21) on the eye (5) for further securing of the locking position.

8. A retaining means as claimed in any of the preceding claims, characterized in that the distance between the eye (5) and the pin (6) is adjustable.

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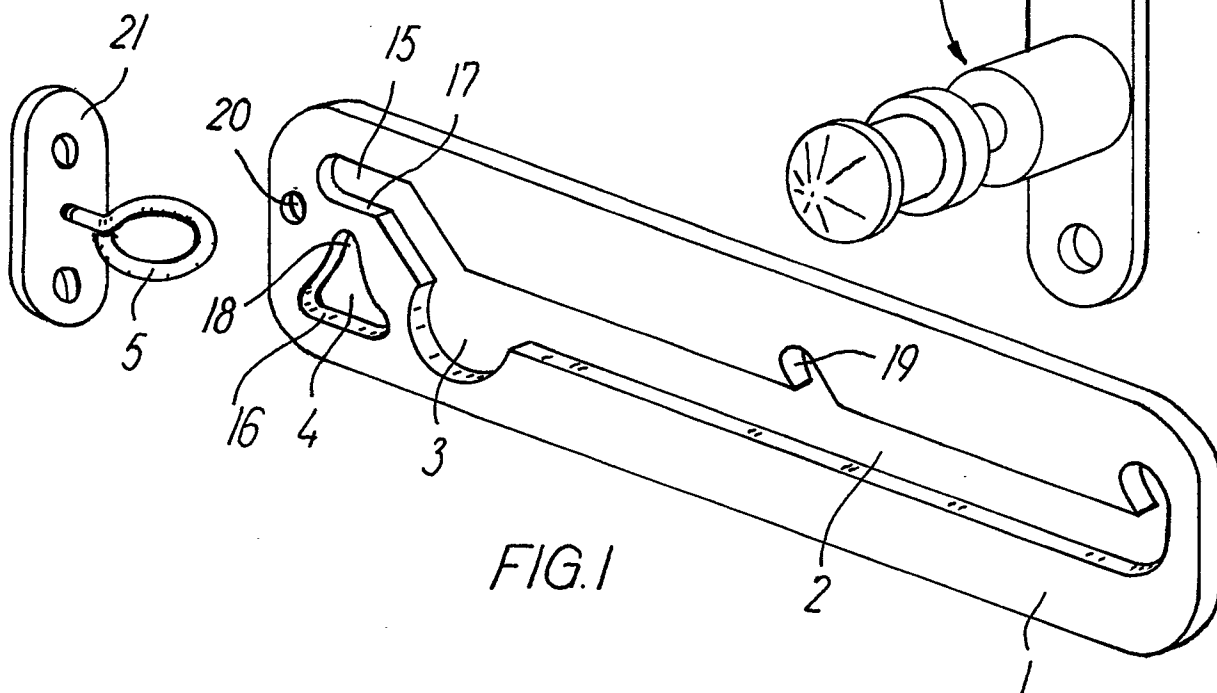


FIG. 1

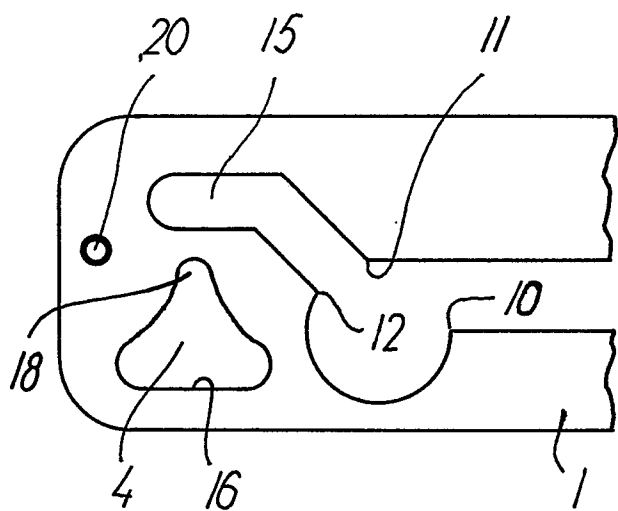


FIG. 2

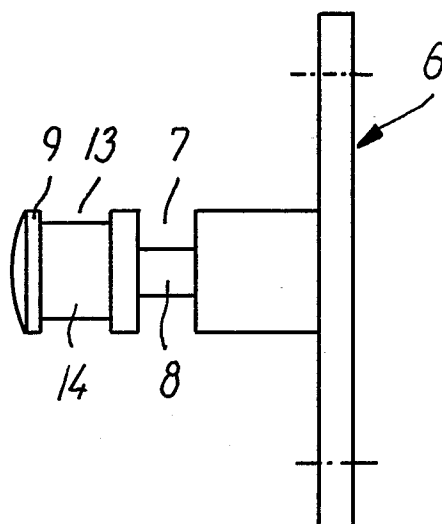


FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

0062472
Application number

EP 82 30 1634.0

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>US - A - 1 565 713</u> (N. CHRISTIANSEN) * page 1, right-hand column; page 2, left-hand column; fig. * --	1,4, 5	E 05 C 17/02 E 05 C 17/18
A	<u>DE - A - 2 252 011</u> (J. RÖSCH) * fig. * ----	1	TECHNICAL FIELDS SEARCHED (Int.Cl. 3) E 05 C 17/00
			CATEGORY OF CITED DOCUMENTS 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 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 &: member of the same patent family, corresponding document
X The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 21-06-1982	Examiner WUNDERLICH