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(12) # EUROPEAN PATENT APPLICATION

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(54) **Egress hinge.**

(57) A hinge or friction stay which allows a window or door to open far enough to give adequate egress. The stay, when used on a window provides a clear window opening through which a person could escape in the event of fire. The hinge comprises a track (14) with a nose cap (15). A strut (18) is pivoted to a slider (20) movement of which is restricted by stop (17) and a second stop (21). A strut (18) is connected to a bar (23) carrying a nose member (24) and the bar is also connected via a link (25) to a second slider (26). A brace (27) connects strut (18) to slider (26). Between slider (26) and the nose cap is a spring (28) which biases movement of slider (26), which movement is achieved by having strut (18) carried by the slider with substantial freedom of movement between stop (17) and (21) as compared with known hinges in which the strut (18) has a fixed pivot point.

Slider (26) has a limited degree of movement but has sufficient movement to allow nose (24) to clear the nose cap (15) during initial opening movement.

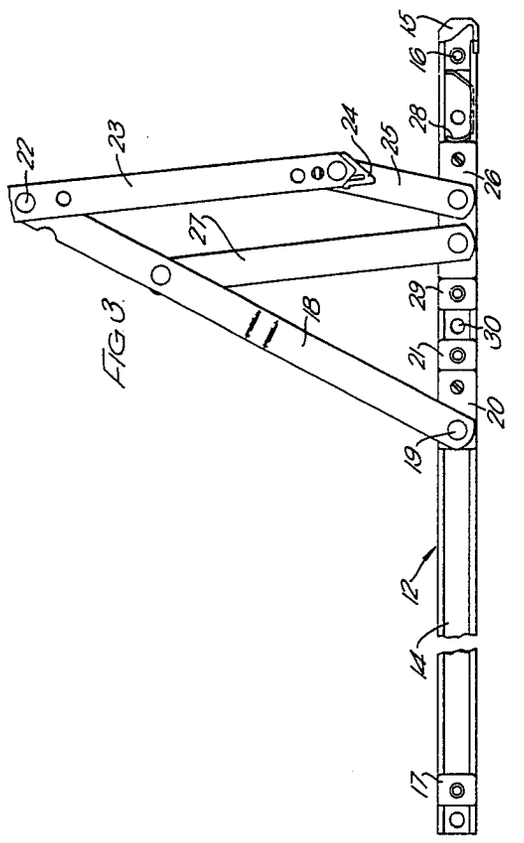

FIG 3

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EGRESS HINGE

This invention relates to a hinge or friction stay of the kind which comprises a track with a nose cap at one end, a strut pivoted on the track, a bar pivoted to the strut, a link connecting the bar to a slider on the track, and a brace connecting the strut to the slider. In this type of hinge, or friction stay, the track is normally connected to the window or door frame and the opening door or window light is attached to the bar. Normally two such hinges or friction stays are used to support a window or door at the bottom or top of the window or door or sometimes in the case of a window on the two sides.

A disadvantage of existing hinges or stays of this kind, is that they do not allow the window or door to open far enough to give adequate egress. Particularly in the case of a window, the hinge or stay allows a limited opening of the window which is insufficient to provide a clear window opening through which a person could escape in the event of fire.

An object of the invention is to provide such a hinge or friction stay, particularly for use with a side-hung window (i.e. a window in which the stays are mounted along the top and bottom edges of the window frame) which will allow sufficient opening of the window light to enable the window to be opened sufficiently for use as an emergency escape exit or sufficiently to allow the window to be cleaned from both sides without the need to go out of the building.

According to the present invention a hinge or friction stay of the type described is so constructed and arranged and so mounted that when the window light is opened the window will move to a position to one side of the frame and substantially clear of the frame so as to allow egress through the open window frame.

From another aspect of the invention there is a window hinge, or friction stay, of the kind which comprises:-

a track with a nose cap at one end;

a strut pivoted on a slider on the track

a bar pivoted to the strut;

a link connecting the bar to a second slider on the track; and a brace connecting the strut to the second slider, the first slider having its movement restricted by two spaced stops, the second slider having a limited degree of free movement and being biased away from the nose cap e.g. by a spring, the arrangement being such that when the hinge is open the strut moves bodily outwards thus allowing the bar carrying the window to swing to one side of the window frame and to provide a substantially unimpeded window opening or at least a window opening in which a substantial proportion of the opening is unimpeded.

The bar will normally carry a nose member which cooperates with the nose caps so as to pull the hinge fully into its closed position during the closing movement, and the first movement during opening is assisted by the spring so that the first slider moves to a limited extent away from the nose cap thus allowing the nose member to clear the nose cap before further opening movement takes place. The hinge may have an additional link or brace located between the bar and the brace, so as to enable the hinge to be used with heavier types of windows.

In the accompanying drawings:-

Figure 1 is a diagrammatic elevation of a window supported in a frame by two hinges incorporating the present invention;

Figure 2 is a diagrammatic plan view of the same window and window frame showing the window in its open position and showing one of the supporting hinges in chain dotted line;

Figure 3 is a plan view of the lower of the two hinges or stays supporting the window, the hinge or stay being shown in its fully open position;

Figure 4 shows the nose end of the same stay when it is in its fully closed position; and

Figure 5 is a plan view of the same stay when it is in its partially open or nearly closed position.

In Figure 1 is shown a window light 10 supported by two friction stays 11 and 12 at its top and bottom in a window frame 13.

As seen in Figure 2 the window light 10 is movable to a position in which it is at one side of the frame and substantially clear of it so that the open frame is substantially unimpeded by the window.

The hinges or friction stays which enable this effect to be achieved are illustrated in Figures 3, 4 and 5. Figure 3 shows the lower of the two hinges 12. The hinge consists of a track 14 which has at one end a nose cap 15 attached to the track by a rivet 16 or other means. At the other end of the track is a rivetted stop 17.

A strut 18 is pivoted at 19 to a slider 20 and the movement of slider 20 is restricted by stop 17 and a second stop 21.

A strut 18 is connected by a rivet 22 to a bar 23 carrying at one end a nose member 24. The bar is also connected via a link 25 to a second slider 26. A brace 27 connects strut 18 to slider 26. Between slider 26 and the nose cap is mounted a spring 28. Movement of the slider 26, which is biased by spring 28, is limited by stop 29.

Stop 29 is not absolutely essential, it is only there to allow space for a fixing hole 30. If the fixing hole were not required then a stop 21 could perform the function of limiting movement of both sliders 20 and 26.

It will be seen that with the hinge in its open position as shown in Figure 3 the bar 23 which carries the window light is located towards the right-hand end of the track and almost at right angles to the track thus leaving a large unimpeded area of the window aperture. This is achieved by having the strut 18 carried by a slider with substantial freedom of movement between the stop 17 and 21 as compared with known hinges in which the strut 18 has a fixed pivot point at the end of the track remote from the nose cap, i.e. where stop 17 is.

The construction used would be difficult to operate were it not for a further feature of the invention i.e. that the first slider 26 has only a limited degree of movement but sufficient movement to allow the nose 24 to clear the nose cap 15 during the initial opening movement of the hinge. As seen in Figure 4, in which the hinge is closed, there is a small gap 31 between the stop 29 and the slider 26.

When the hinge is opened, as seen in Figure 5, the spring 28 biases the slider 26 so that the gap 31 will be closed as the slider 26 moves towards and abuts stop 29. This initial movement of the slider 26 along the track causes the nose 24 to clear the nose cap 15 and thus prevents the nose fouling the cap during the opening movement.

The invention may be applied for example to friction supported stays or hinges of a type shown in our European Patent Application 0112681Al, or in U.K. Patent Application 2144173A or in U.K. Patent Application 2081803B all of which are examples of friction stays manufactured by the present Applicants.

The spring 28 although shown as a wire type spring may be replaced by a Z shaped spring or a coil spring where there is sufficient room to put such a spring in.

An additional link or brace may be provided between bar and brace to enable the hinge to be used with heavier type windows.

Claims

1. A hinge or friction stay of the kind which comprises a track (14) with a nose cap (15) at one end, a strut (18) pivoted on the track, a bar (23) pivoted to the strut, a link (25) connecting the bar (23) to a slider (26) on the track, and a brace (27) connecting the strut (18) to the slider, characterised by being so constructed and arranged and so mounted that when the window light or door is opened the window or door will move to a position to one side of the frame and substantially clear of the frame so as to allow egress through the open window or door frame.

2. A window hinge, or friction stay, of the kind which comprises:-

a track (14) with a nose cap (15) at one end;

a strut (18) pivoted on a slider (20) on the track (14);

a bar (23) pivoted to the strut (18);

characterised by a link (25) connecting the bar (23) to a second slider (26) on the track; and a brace (27) connecting the strut (18) to the second slider (26), the first slider (20) having its movement restricted by two spaced stops (17,21), the second slider (26) having a limited degree of free movement and being resiliently biased (28) away from the nose cap (15), the arrangement being such that when the hinge is open the strut (18) moves bodily outwards thus allowing the bar (18) carrying the window to swing to one side of the window frame and to provide a substantially unimpeded window opening or at least a window opening in which a substantial proportion of the opening is unimpeded.

3. A window hinge or friction stay according to claim 1 and characterised in that the bar (23) carries a nose member (24) which cooperates with the nose cap (15) so as to pull the hinge fully into its closed position during the closing movement, and the first movement during opening is assisted by the spring (28) so that the first slider (26) moves to a limited extent away from the nose cap (15) thus allowing the nose member (24) to clear the nose cap (15) before further opening movement takes place.

4. A window hinge or friction stay according to claim 2 or claim 3 characterised in that the hinge has an additional link or brace located between the bar and the brace, so as to enable the hinge to be used with heavier types of windows.

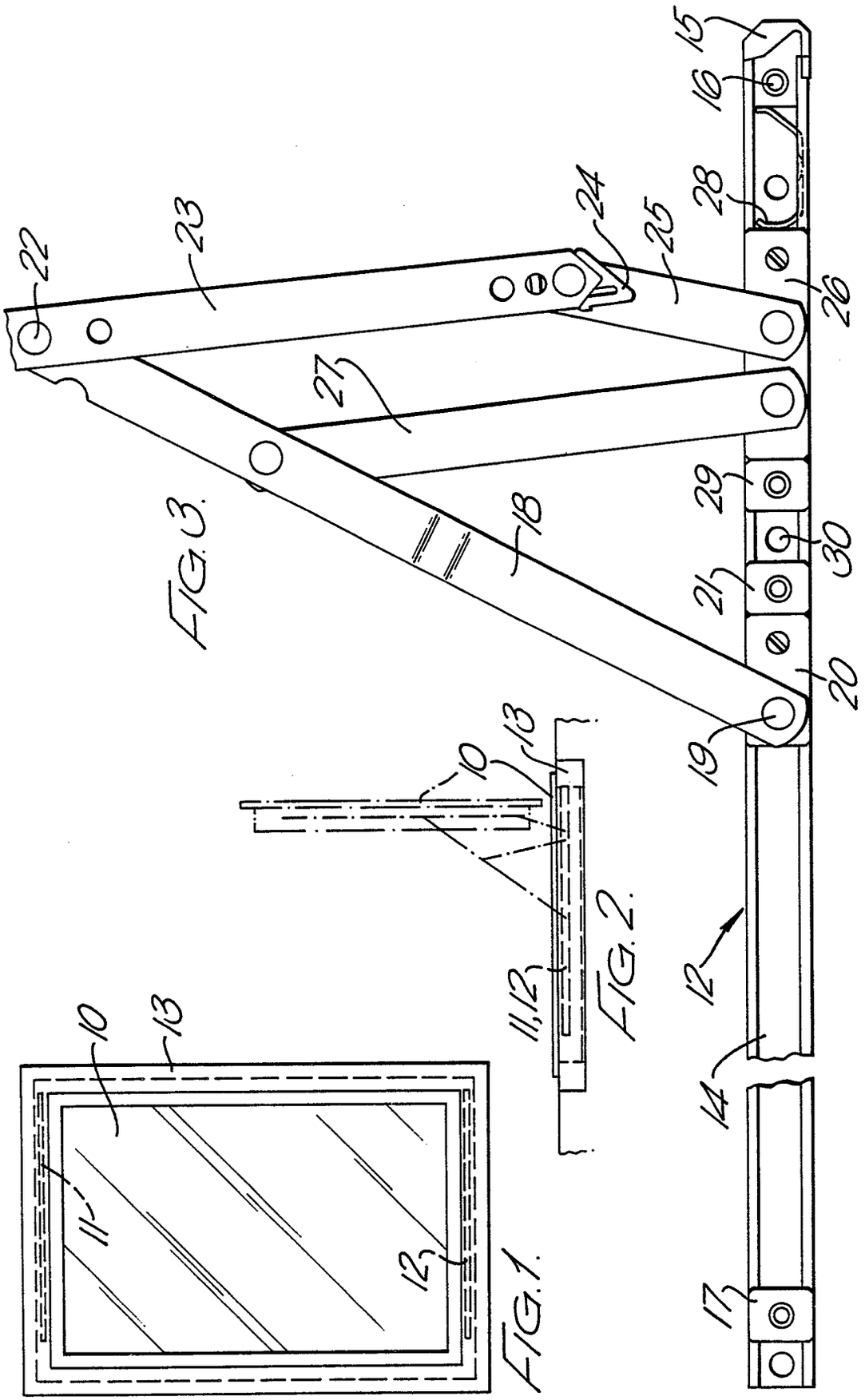

FIG. 3.

FIG. 2.

FIG. 1.

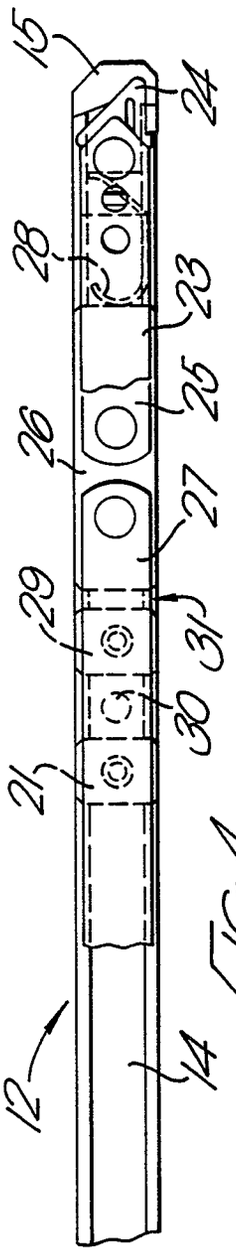
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FIG.4.

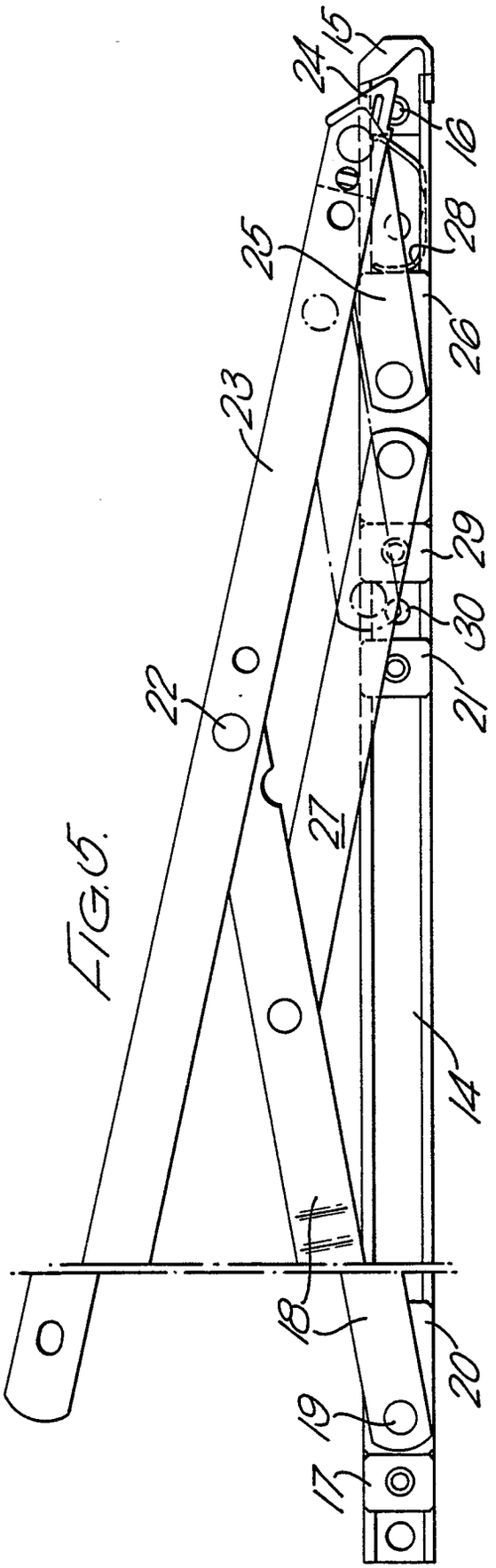
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FIG.5.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 4911

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.4)
D,Y	EP-A-0 112 681 (SECURISTYLE LTD) * Figure 1; page 1, lines 1-25 *	1	E 05 D 15/30 E 05 D 15/44
A		3,4	
Y	DE-U-8 516 560 (SIEGENIA-FRANK KG) * Figure 2; page 11, paragraph 1 *	1	
A	GB-A-2 025 499 (TORBJORN STRAND) * Figure 1; page 1, column 2, lines 76-91 *	2	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

E 05 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	12-08-1988	KISING A.J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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