



US005657578A

United States Patent [19]
Thompson

[11] **Patent Number:** 5,657,578
[45] **Date of Patent:** Aug. 19, 1997

[54] **EASY OUT FIRE ESCAPE WINDOW GATE**

[76] **Inventor:** Robert Thompson, 807 E. 42nd. St.,
Brooklyn, N.Y. 11210

Primary Examiner—Kenneth J. Dorner
Assistant Examiner—Jerry Redman
Attorney, Agent, or Firm—Michael I. Kroll

[57] **ABSTRACT**

[21] **Appl. No.:** 559,923

[22] **Filed:** Nov. 17, 1995

[51] **Int. Cl.⁶** **E05B 65/10**

[52] **U.S. Cl.** **49/141; 49/50; 49/395**

[58] **Field of Search** **49/366, 50, 141,**
49/395; 292/38

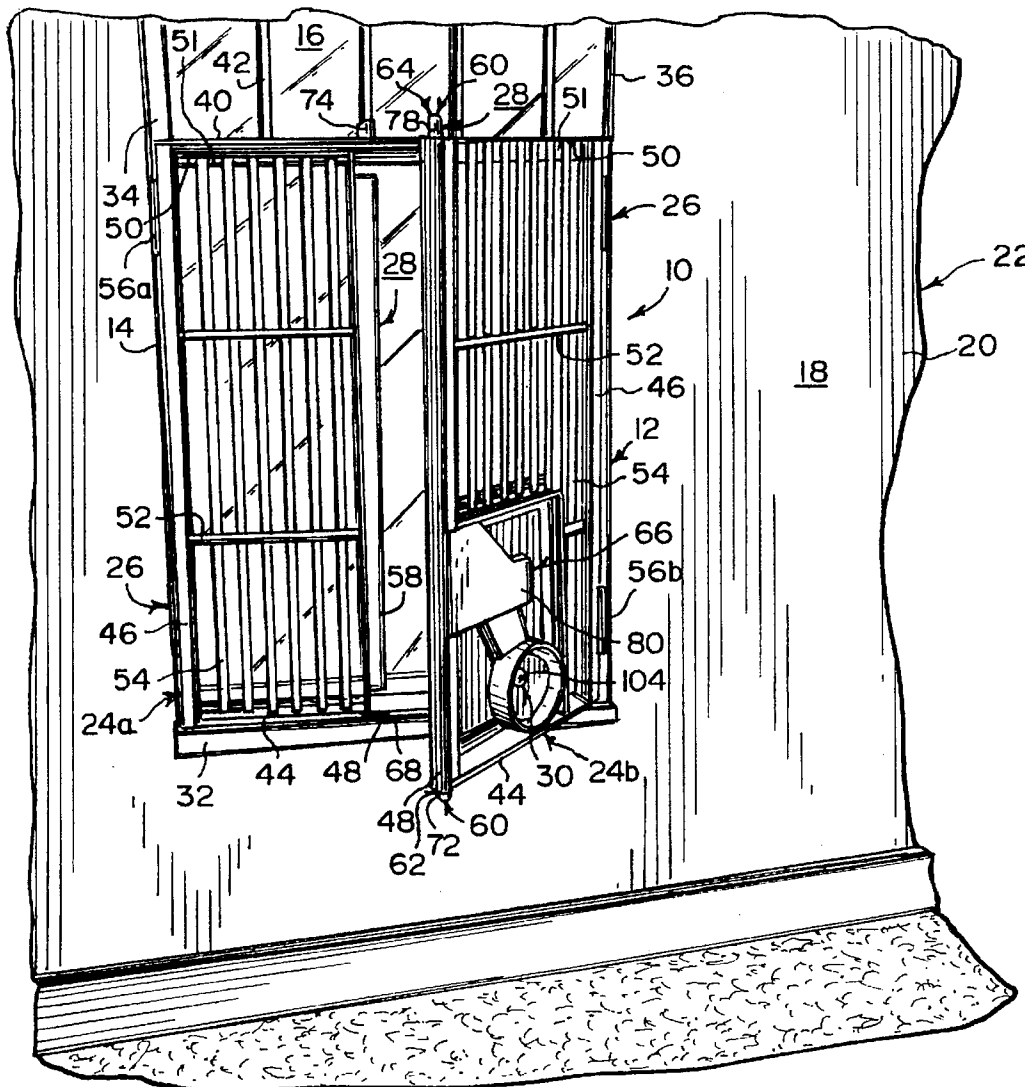
An easy out fire escape window gate comprising a gate frame mounted to a window frame of a window on an inner side of an exterior wall of a building. A pair of protective shutters are provided. Components are for connecting opposite sides of the protective shutters to opposite sides of the gate frame. The protective shutters can swing to an open position and a closed position. A structure is for locking the protective shutters to the gate frame in the closed position, to prevent an entry through the window from the exterior of the building to reduce burglaries. A facility is for quickly unlocking the protective shutters from the gate frame. The protective shutters can go into the opened position, to allow people within the building to safely exit through the window during a fire.

[56] **References Cited**

U.S. PATENT DOCUMENTS

912,379	2/1909	Jackson	292/38
1,552,690	9/1925	Frantz	292/38 X
3,617,080	11/1971	Miller	292/38
4,677,789	7/1987	Merry	49/141 X
5,289,655	3/1994	Marmora et al.	49/141

6 Claims, 3 Drawing Sheets



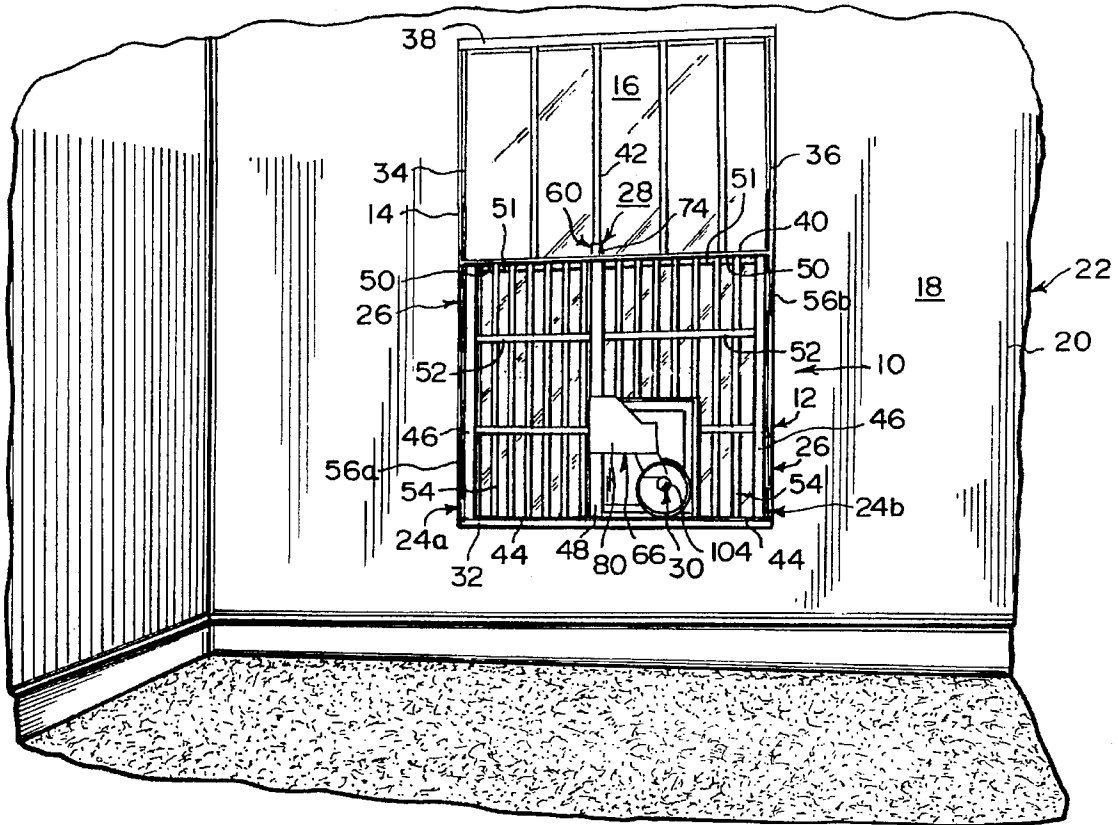


Fig. 1

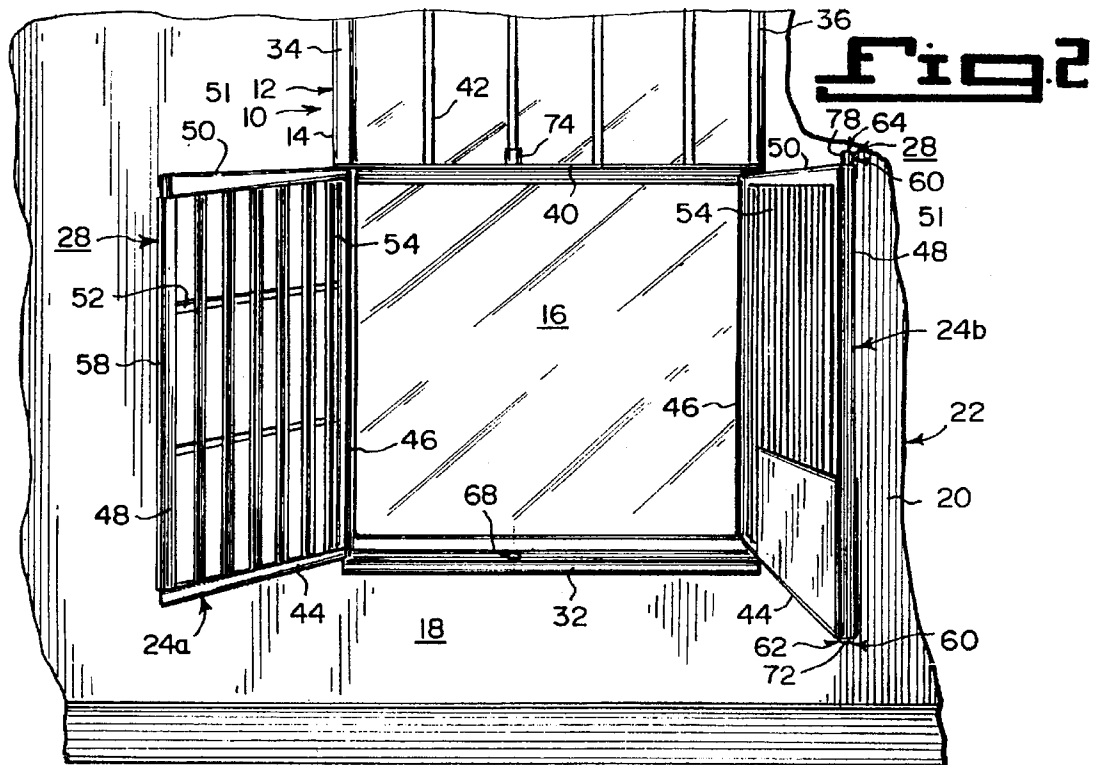


Fig. 2

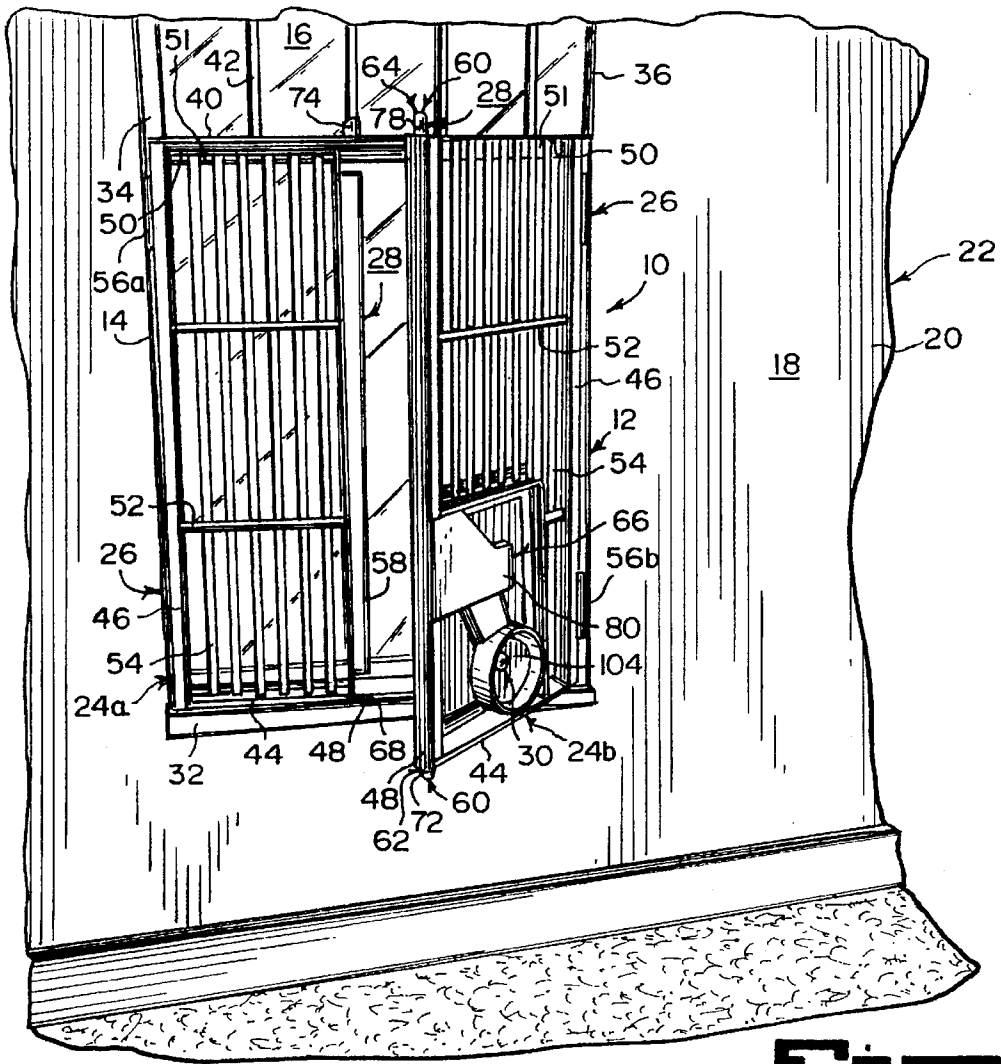


Fig. 3

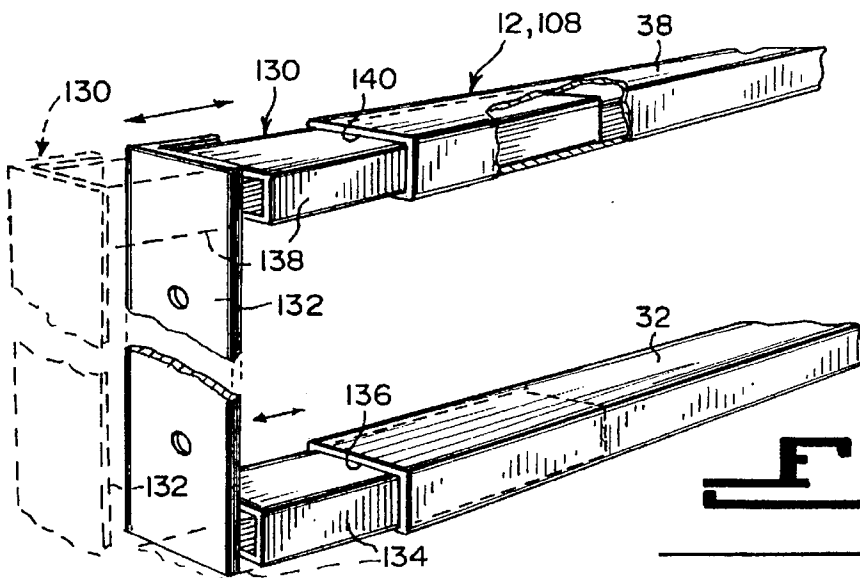


Fig. 4

Fig. 5

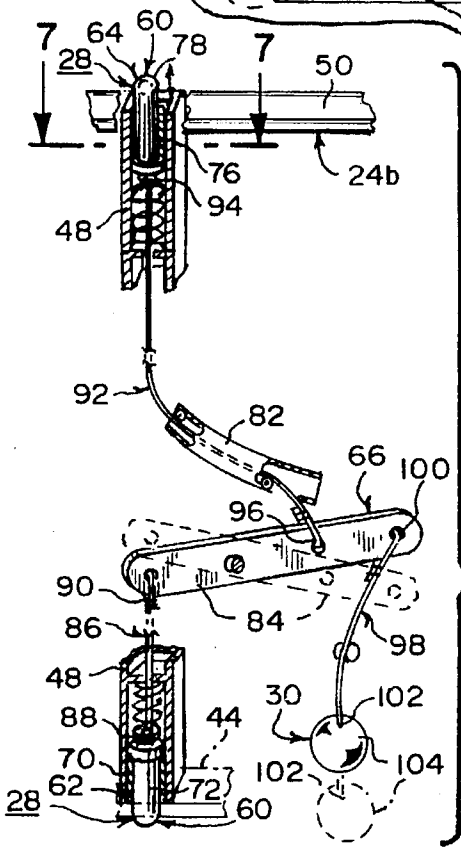
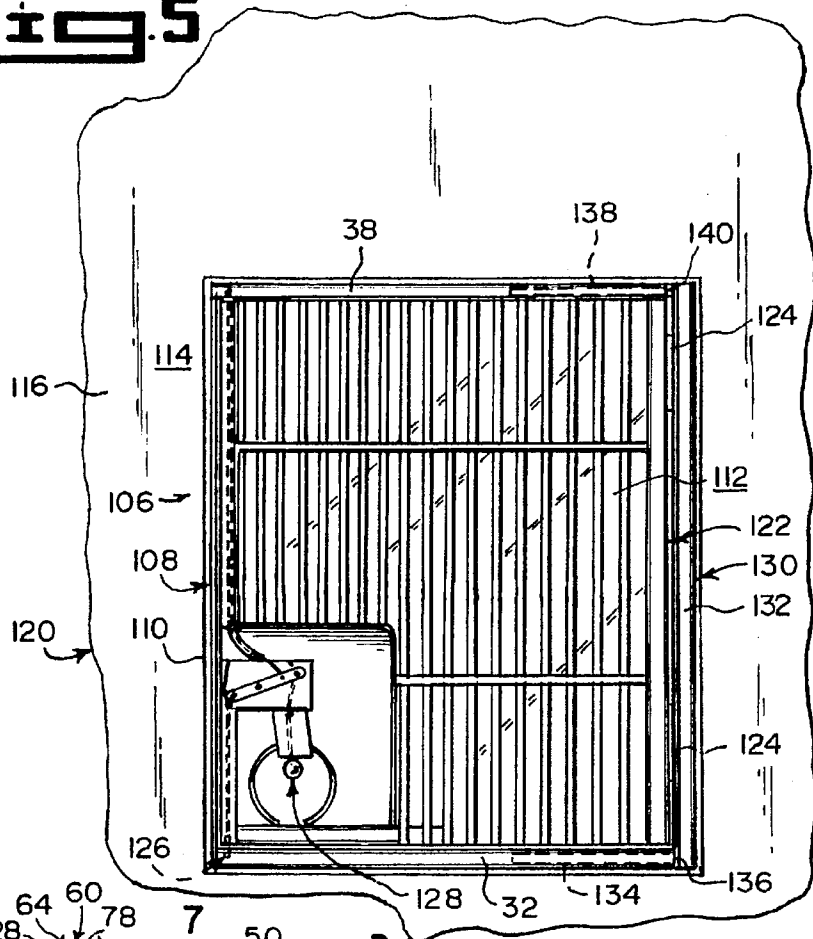


Fig. 7

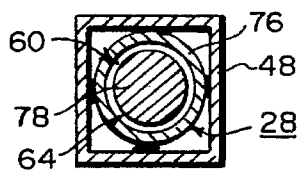


Fig. 6

EASY OUT FIRE ESCAPE WINDOW GATE**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The instant invention relates generally to window guards and more specifically it relates to an easy out fire escape window gate.

2. Description of the Prior Art

Numerous window guards have been provided in prior art that are adapted to cover windows, to prevent the unauthorized entry through the windows of burglars and other people not wanted. While these units may be suitable for the particular purpose to which they address, they would not be as suitable for the purposes of the present invention as heretofore described.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide an easy out fire escape window gate that will overcome the shortcomings of the prior art devices.

Another object is to provide an easy out fire escape window gate that is a protective shutter, which will cover and lock onto the interior side of a window frame, to prevent entry through the window from the exterior of the building to reduce burglaries.

An additional object is to provide an easy out fire escape window gate, in which the protective shutter can be opened quickly, to allow any people within the building to safely exit through the window in the building during a fire.

A further object is to provide an easy out fire escape window gate that is simple and easy to use.

A still further object is to provide an easy out fire escape window gate that is economical in cost to manufacture.

Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

Various other objects, features and attendant advantages of the present invention will become more fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views, and wherein;

FIG. 1 a perspective view of a portion of an inner side of an exterior wall of a building, showing a first embodiment of the instant invention installed into a window frame with the two protective shutters locked closed.

FIG. 2 is an enlarged perspective view of a portion of the inner side of the exterior wall of the building, showing the two protective shutters of the first embodiment opened.

FIG. 3 is an enlarged perspective view of a portion of the inner side of the exterior wall of the building, showing one of the protective shutters of the first embodiment partially opened.

FIG. 4 a perspective view with parts broken away and in section, showing a frame expander inserted into the lintel and sill of the gate frame of the first embodiment.

FIG. 5 is an elevational view with parts broken away of a second embodiment of the instant invention with the protective shutter locked closed and the frame expander inserted into the lintel and sill of the gate frame.

FIG. 6 is a perspective view with parts broken away and in section showing the various parts of the locking mechanism.

FIG. 7 is a cross sectional view taken along line 7—7 in FIG. 6.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1 through 3 illustrate an easy out fire escape window gate 10, comprising a gate frame 12 mounted to a window frame 14 of a window 16 on an inner side 18 of an exterior wall 20 of a building 22. A pair of protective shutters 24a, 24b are provided. Components 26 are for connecting opposite sides of the protective shutters 24a, 24b to opposite sides of the gate frame 12. The protective shutters 24a, 24b can swing to an open position and a closed position. A structure 28 is for locking the protective shutters 24a, 24b to the gate frame 12 in the closed position, to prevent an entry through the window 16 from the exterior of the building 22 to reduce burglaries. A facility 30 is for quickly unlocking the protective shutters 24a, 24b from the gate frame 12. The protective shutters 24a, 24b can go into the opened position, to allow people within the building 22 to safely exit through the window 16 during a fire.

The gate frame 12 consists of a sill 32. A left jamb 34 is affixed to and extends upwardly from the sill 32. A right jamb 36 is affixed to and extends upwardly from the sill 32. A lintel 38 affixed between the left jamb 34 and the right jamb 36 extends parallel over the sill 32. An intermediate horizontal gate frame bar 40 is affixed between the left jamb 34 and the right jamb 36. A plurality of spaced apart vertical gate frame bars 42 are affixed between the lintel 38 and the intermediate horizontal gate frame bar 40.

Each protective shutter 24a, 24b includes a bottom rail 44. A butte stile 46 is affixed to and extends upwardly from the bottom rail 44. A lock stile 48 is affixed to and extends upwardly from the bottom rail 44. A top rail 50 having a flange 51 affixed between the butte stile 46 and the lock stile 48 and extends parallel over the bottom rail 44. A plurality of spaced apart horizontal shutter bars 52 are affixed between the butte stile 46 and the lock stile 48. A plurality of spaced apart vertical shutter bars 54 are affixed between the bottom rail 44 and the flange 51 of the top rail 50.

The connecting components 26 consist of a plurality of hinges 56a between the left jamb 34 of the gate frame 12 and the butte stile 46 of the first protective shutter 24a. A plurality of hinges 56b are between the right jamb 36 of the gate frame 12 and the butte stile 46 of the second protective shutter 24b.

The locking structure 28 includes an elongated vertical flange 58 connected to the lock stile 48 of the first protective shutter 24a. A locking mechanism 60 is connected to the lock stile 48 of the second protective shutter 24b. When the first protective shutter 24a goes into the closed position and the second protective shutter 24b goes into the closed position, the elongated vertical flange 58 will fit behind the lock stile 48 of the second protective shutter 24b. The

locking mechanism **60** in the lock stile **48** of the second protective shutter **24b** will engage with the sill **32** and the intermediate horizontal gate frame bar **40**, to keep the first protective shutter **24a** and the second protective shutter **24b** in the closed position.

The locking mechanism **60** contains a bottom slam bolt assembly **62** mounted within a bottom end of the lock stile **48** of the second protective shutter **24b**. A top slam bolt assembly **64** is mounted within a top end of the lock stile **48** of the second protective shutter **24b**.

The unlocking facility **30** includes a release mechanism **66** connected to the lock stile **48** of the second protective shutter **24b** and is coupled to the bottom slam bolt assembly **62** and the top slam bolt assembly **64**. When the release mechanism **66** is manually activated, the bottom slam bolt assembly **62** and the top slam bolt assembly **64** will be disengaged, to allow the second protective shutter **24b** to go into the opened position and the first protective shutter **24a** to go into the opened position.

The bottom slam bolt assembly **62**, as best seen in FIGS. 2 and 6, consists of the sill **32** of the gate frame **12** having a socket **68** therein. A sleeve **70** is affixed into the bottom end of the lock stile **48** of the second protective shutter **24b**. A bottom spring biased slide bolt **72** is carried within the sleeve **70**, to normally extend outwardly from the sleeve **70**, so as to enter the socket **68** in the sill **32**.

The top slam bolt assembly **64**, as best seen in FIGS. 2, 6 and 7, includes the intermediate horizontal gate frame bar **40** of the gate frame **12** having a socket **74** therein. A sleeve **76** is affixed into the top end of the lock stile **48** of the second protective shutter **24b**. A top spring biased slide bolt **78** is carried within the sleeve **76** to normally extend outwardly from the sleeve **76**, so as to enter the socket **74** in the intermediate horizontal gate frame bar **40**.

The release mechanism **66**, as best seen in FIGS. 3 and 6, comprises a housing **80** having a cable guide **82** connected to the lock stile **48** of the second protective shutter **24b**. An actuator lever **84** is pivotally carried within the housing **80**. A first cable **86** extending down through the lock stile **48**, has a first end **88** connected to the bottom spring biased slide bolt **72** of the bottom slam bolt assembly **62** and a second end **90** connected to one side of the actuator lever **84**. A second cable **92** extending up through the cable guide **82** and the lock stile **48**, has a first end **94** connected to the top spring biased slide bolt **78** of the top slam bolt assembly **64** and a second end **96** connected to an opposite side of the actuator lever **84**. A third cable **98** has a first end **100** connected to the opposite side of the actuator lever **84** and a second end **102** extending down and out of the housing **80**. A knob **104** is affixed to the second end **102** of the third cable **98**. When the knob **104** is pulled downwardly, the bottom spring biased slide bolt **72** and the top spring biased slide bolt **78** will disengage from the respective sockets **68** and **74**.

FIG. 5 shows a modified easy out fire escape window gate **106**, comprising a gate frame **108** mounted to a window frame **110** of a window **112** on an inner side **114** of an exterior wall **116** of a building **120**. A protective shutter **122** is provided. Components **124** are for connecting one side of the protective shutter **122** to one side of the gate frame **108**. The protective shutter **122** can swing to an open position and to a closed position. A structure **126** is for locking the protective shutter **122** to the gate frame **108** in the closed position, to prevent an entry through the window **112** from the exterior of the building **120** to reduce burglaries. A facility **128** is for quickly unlocking the protective shutter **122** from the gate frame **108**. The protective shutter **122** can

go into the open position, to allow people within the building **120** to safely exit through the window **112** during a fire. The locking structure **126** and the unlocking facility **128** is identical to the locking structure **28** and the unlocking facility **30** in the easy out fire escape window gate **10**.

A frame extender **130** is shown in FIGS. 4 and 5, and consists of an elongated vertical L-shaped channel member **132**. A first arm **134** is affixed at one end and at a right angle to a lower end of the channel member **132**, to slide fit into an open end **136** of the sill **32** of the gate frame **12** or **108**. A second arm **138** is affixed at one end and at a right angle to an upper end of the channel member **132**, to slide fit into an open end **140** of the lintel **38** of the gate frame **12** or **108**.

The frame extender **130** compensates for different width window frames. There will be no distortion of alignment of the bottom spring biased slide bolt **72** to the socket **68** and the top spring biased slide bolt **78** to the socket **74**. The frame extender **130** allows for a good fit regardless of window distortion or allowance necessary for installation.

LIST OF REFERENCE NUMBERS

10	easy out fire escape window gate
12	gate frame of 10
14	window frame of 16
16	window in 14
18	inner side of 20
20	exterior wall of 22
22	building
24a	first protective shutter of 10
24b	second protective shutter of 10
26	connecting component
28	locking structure
30	unlocking facility
32	sill of 12 and 108
34	left jamb of 12
36	right jamb of 12
38	lintel of 12 and 108
40	intermediate horizontal gate frame bar of 12
42	vertical gate frame bar of 12
44	bottom rail of 24a , 24b
46	butte stile of 24a , 24b
48	lock stile of 24a , 24b
50	top rail of 24a , 24b
51	flange of 50
52	horizontal shutter bar of 24a , 24b
54	vertical shutter bar of 24a , 24b
56a	hinge of 26 between 34 and 46
56b	hinge of 26 between 36 and 46
58	elongated vertical flange of 28
60	locking mechanism of 28
62	bottom slam bolt assembly of 60
64	top slam bolt assembly of 60
66	release mechanism for 30
68	socket in 32
70	sleeve of 62
72	bottom spring biased slide bolt in 70
74	socket in 40
76	sleeve of 64
78	top spring biased slide bolt in 76

- 80 housing of 66
- 82 cable guide in 80
- 84 actuator lever in 80
- 86 first cable of 66
- 88 first end of 86
- 90 second end of 86
- 92 second cable of 66
- 94 first end of 92
- 96 second end of 92
- 98 third cable of 66
- 100 first end of 98
- 102 second end of 98
- 104 knob on 102
- 106 modified easy out fire escape window gate
- 108 gate frame of 106
- 110 window frame of 112
- 112 window in 110
- 114 inner side of 116
- 116 exterior wall of 120
- 120 building
- 122 protective shutter
- 124 connecting component
- 126 locking structure
- 128 unlocking facility
- 130 frame extender
- 132 elongated vertical L-shaped channel member of 130
- 134 first arm of 130
- 136 open end of 32
- 138 second arm of 130
- 140 open end of 38

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described are pointed out in the annexed claims, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed is new and desired to be protected by Letters Patent is set forth in the appended claims:

1. An easy out fire escape window gate comprising:
 - a) a gate frame mounted to a window frame of a window on an inner side of an exterior wall of a building, said gate frame including:
 - i) a sill;
 - ii) a left jamb affixed to and extending upwardly from said sill;
 - iii) a right jamb affixed to and extending upwardly from said sill;
 - iv) a lintel affixed between said left jamb and said right jamb extending parallel over said sill;

- v) an intermediate horizontal gate frame bar affixed between said left jamb and said right jamb; and
 - vi) a plurality of spaced apart vertical gate frame bars affixed between said lintel and said intermediate horizontal gate frame bar;
- b) first and second protective shutters, both of which include:
 - i) a bottom rail;
 - ii) a butte stile affixed to and extending upwardly from said bottom rail;
 - iii) a lock stile affixed to and extending upwardly from said bottom rail;
 - iv) a top rail having a flange affixed between said butte stile and said lock stile, extending parallel over said bottom rail;
 - v) a plurality of spaced apart horizontal shutter bars affixed between said butte stile and said lock stile; and
 - vi) a plurality of spaced apart vertical shutter bars affixed between said bottom rail and said flange of said top rail;
 - c) means for connecting opposite sides of said protective shutters to opposite sides of said gate frame, so that said protective shutters can swing to an open position and a closed position;
 - d) means for locking said protective shutters to said gate frame in the closed position, to prevent an entry through the window from the exterior of the building to reduce burglaries, said locking means including:
 - i) an elongated vertical flange connected to said lock stile of said first protective shutter; and
 - ii) a locking mechanism connected to said lock stile of said second protective shutter, so that when said first protective shutter goes into the closed position and said second protective shutter goes into the closed position, said elongated vertical flange will fit behind said lock stile of said second protective shutter, while said locking mechanism in said lock stile of said second protective shutter will engage with said sill and said intermediate horizontal gate frame bar, to keep said first protective shutter and said second protective shutter in the closed position, said locking mechanism including: a bottom slam bolt assembly mounted within a bottom end of said lock stile of said second protective shutter; and a top slam bolt assembly mounted within a top end of said lock stile of said second protective shutter, said top slam bolt assembly including:
 - A) a socket in said intermediate horizontal gate frame bar of said gate;
 - B) a sleeve affixed into said top end of said lock stile of said second protective shutter; and
 - C) a top spring biased slide bolt carried within said sleeve, so as to enter said socket in said intermediate horizontal gate frame bar; and
 - e) means for quickly unlocking said protective shutters from said gate frame, so that said protective shutters can go into the opened position to allow people within the building to safely exit through the window during a fire, said unlocking means including a release mechanism connected to said lock stile of said second protective shutter and coupled to said bottom slam bolt assembly and said top slam bolt assembly, so that when said release mechanism is manually activated, said bottom slam bolt assembly and said top slam bolt assembly will be disengaged to allow said second

protective shutter to go into the opened position and said first protective shutter to go into the opened position, said release mechanism including:

- i) a housing having a cable guide connected to said lock stile of said second protective shutter;
- ii) an actuator lever pivotally carried within said housing;
- iii) a first cable extending down through said lock stile, having a first end connected to said bottom spring biased slide bolt of said bottom slam bolt assembly and a second end connected to one side of said actuator lever;
- iv) a second cable extending up through said cable guide and said lock stile, having a first end connected to said top spring biased slide bolt of said top slam bolt assembly and a second end connected to an opposite side of said actuator lever;
- v) a third cable having a first end connected to the opposite side of said actuator lever and a second end extending down and out of said housing;
- vi) a knob affixed to said second end of said third cable, so that when said knob is pulled downwardly, said bottom spring biased slide bolt and said top spring biased slide bolt will disengage from said respective sockets.

2. An easy out fire escape window gate as recited in claim 1, wherein said connecting means includes:

- a) a plurality of hinges between said left jamb of said gate frame and said butte stile of said first protective shutter; and
- b) a plurality of hinges between said right jamb of said gate frame and said butte stile of said second protective shutter.

3. An easy out fire escape window gate as recited in claim 2, wherein said bottom slam bolt assembly includes:

- a) said sill of said gate frame having a socket therein;
- b) a sleeve affixed into said bottom end of said lock stile of said second protective shutter; and
- c) a bottom spring biased slide bolt carried within said sleeve to normally extend outwardly from said sleeve, so as to enter said socket in said sill.

4. An easy out fire escape window gate as recited in claim 3, further including a frame extender consisting of:

- a) an elongated vertical L-shaped channel member;
- b) a first arm affixed at one end and at a right angle to a lower end of said channel member, to slide fit into an open end of said sill of said gate frame; and
- c) a second arm affixed at one end and at a right angle to an upper end of said channel member, to slide fit into an open end of said lintel of said gate frame.

5. An easy out fire escape window gate as recited in claim 1, wherein said bottom slam bolt assembly includes:

- a) said sill of said gate frame having a socket therein;
- b) a sleeve affixed into said bottom end of said lock stile of said second protective shutter; and
- c) a bottom spring biased slide bolt carried within said sleeve to normally extend outwardly from said sleeve, so as to enter said socket in said sill.

6. An easy out fire escape window gate as recited in claim 1, further including a frame extender consisting of:

- member;
- b) a first arm affixed at one end and at a right angle to a lower end of said channel member, to slide fit into an open end of said sill of said gate frame; and
- c) a second arm affixed at one end and at a right angle to an upper end of said channel member, to slide fit into an open end of said lintel of said gate frame.

* * * * *