Provisional Patent Application for
Concealed Engagable Window Guard

EID373 - Patent Law
Professor Wolf
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Concealed Engagable Window Guard

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U.S. Classification .......... 49/541; 49/55; 49/56, 49/57

ABSTRACT

Drawbacks of window attachments in homes such as window guards or bug screens are that they obstruct outward views and prevent emergency escape. These drawbacks result from the fact that window attachments are generally metal structures affixed within the concrete of a building. This invention permits movement of window attachments by placing them within concealed panels resting in a cavity below a window sash. A single motion of the sash will lift any desired combination of engaged panels, and an emergency quick-release will enable an immediate disengagement of all panels.

1 Claim, 10 Drawing Sheets

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1 (This footnote would not be in the actual application but is for the benefit of the non-patent savvy reader)

Class 49; Moveable or Removable Closures; This is the residual class of closures, which are movable or removable, and of ancillary devices not elsewhere classifiable.

Subclass 54; Carried by closure to vacated opening; Device provided with means joining the grille or guard to a closure, wherein movement of the closure moves the grille or guard to the position in the opening vacated by the closure.
FIELD OF THE INVENTION

The present invention relates to safety devices for windows and, more particularly, to an improved window guard construction for use in conventional windows having upper and lower window sashes.

BACKGROUND OF THE INVENTION

Window guards are often placed in apartment buildings and houses to prevent accidental falls. In many areas, particularly in large cities, the installation of window guards are required by law. Window guards are often metal bars affixed within the concrete of a building, and as such do not translate in space. They obstruct outward views from the inside of a home, and are aesthetically unpleasing to the eye for outside viewers. In an attempt to address this problem, many new buildings opt to construct windows that do not open or close. This solution is inconvenient because it prevents an easily available source of fresh air into a home. Additionally, in the event of a fire, a closed window or fixed window guard prevents escape through the window.

New York City is a typical city where the invention may find its utility and commercial value. The NYC Health Code requires "owners of buildings of 3 or more apartments to provide and properly install approved window guards on all windows in an apartment where a child (or children) 10 years of age or younger reside and in each hallway window."

NYC code requires that "Approved window guards are a minimum of 15 inches tall with horizontal bars spaced so that a 5-inch ball (i.e., the size of a baby's head) cannot pass through." The proposed invention should be designed to meet the standards and specifications of the area for which it is marketed.

In accordance with city and state laws, the proposed invention can be utilized in a manner such that only a landlord is provided with the proper key-access to the mechanism which raises and lowers the deadbolts. This would ensure that both children and mentally challenged people will not be able to tamper with the guard.

Solutions to this problem were largely addressed from the late 1800's to the early 1900's, and the art has remained relatively unchanged since then.

Patents that address this problem generally fall into at least one of four categories.

A) Window guards consisting of a plurality of bars which move along with the window sill.

B) Window guards consisting of an arrangement of rods which collapse as the window sill is moved.

C) Screens and cable systems which retract into a spool.

D) A plurality of bars or a screen which is not interconnected with the window sash.

Although there are several patents associated with each of these classes, one such example of each class will be commented on.
A) U.S. Patent 104,228 IMPROVEMENT IN WINDOW-GUARDS displayed in FIG. 7 teaches a plurality of bars which rest within a wall when the window sash is closed, and rise along with the sash as it is lifted. This patent, and the teachings of others like it only teach a single movable structure that does not provide the conveniences and customization of the proposed invention. The '228 patent also teaches away from the quick-release feature in the proposed invention by suggesting that the guard be difficult to remove on lower floors so as to protect against unauthorized entrance. As the inventor of the '228 patent noted, "I would prefer a very strong and efficient fastening." In suggesting a strong fastening for lower floors, inventions of this patent sacrifice safety for a negligible amount of added security.

B) U.S. Patent 1,552,612 COLLAPSIBLE WINDOW GUARD displayed in FIG. 8 teaches a foldable arrangement of 'lazy tong' construction which can be engaged to the window sill so that it folds as the windows sash is lowered and unfolds as the window sash is raised. This construction is problematic for several reasons. A 'lazy tong' construction presents hazardous conditions for the person opening or closing the window as a limb or an article or clothing may easily get caught in the mesh arrangement. Additionally, as taught in this patent and similar patents, the foldable construction does not remain entirely concealed to the eye. Foldable construction as described in this class of patents contains very complicated systems which require extra installation and expensive manufacturing costs. Finally, the inventions described in these patents are most prone to wear and tear because of the greater number of moving parts.

C) U.S. Patent 521,607 GUARD AND SHADE ATTACHMENT FOR WINDOWS displayed in FIG. 9 and patents like it teach about screens that are wrapped around a mounted rotating roller, and may be attached to the window sash to be unfolded. Window arrangements which include screens that employ this teaching are prone to several issues. Screens that are rolled up in this manner lack rigidity that they may otherwise have. This may lead to screens that are easily warped. This system is also prone to breakage because of the mechanical nature of the roller, and the necessity for proper alignment.

D) U.S. Patent 879,342 WINDOW GUARD displayed in FIG. 10 and patents like it teach mechanisms that are independent of the window sill and window sash. The '342 patent teaches a plurality of bars which lie in front of the window sill, and fold away from the window. This teaching does not utilize the dual action of pulling up the window sill and engaging the guard, and thus requires more work for the user. Additionally this system is aesthetically unpleasing and bulky to a person residing in the home. The teachings in these patents also contain the same safety hazard described in C).

None of these four classes are very close to the proposed invention because they don't accomplish the following:

convenient swapping of panels;
ornamental preference of panels;
the benefit of lifting several panels with distinct function with a single motion;

OBJECTIVES AND BRIEF SUMMARY OF THE INVENTION

The principle objectives of this window guard assembly are:

to provide an unobstructed view when the window is in a closed position;

to entirely conceal panels from view when the window is in a closed position;

to allow the concealed panels to be interchanged with one another;

to allow the panels to be individually engaged to the window sash so that when the window sill is moved, the engaged panels will move along with the sash;

to allow an emergency quick-release that immediately drops all of the engaged panels.

A preferred embodiment of the invention which accomplishes each of the objectives set above includes a window safety system having multiple levels of concealed panels which can be engaged to a sliding window sash such that when the panels are engaged, they will be moved along with the window sash as the window sill is pushed closed or pulled open. Such panels can contain but are not limited to any arrangement of bars for preventing falls or unwanted entry, a screen mesh for preventing bugs from entering, or a shade attachment for blocking out the sun. Each layer may be independently engaged, and an emergency quick release will immediately drop all of the engaged panels. Each panel is interchangeable with one another, and panels can be custom-made for a person's ornamental preference. Each layer can be separately locked with a key.

BRIEF DESCRIPTION OF FIGURES

(This footnote would not be in the actual application but is for the benefit of the non-patent savvy reader)

FIG. 1 is an isometric view of the invention;

FIG. 2 is a front view of the invention;

FIG. 3 is a side view of the invention;

FIG. 4 is a side view of the invention in a closed and engaged position;

FIG. 5 is a detailed drawing of the lower sash;

FIG. 6 is a detailed drawing of a typical panel;

FIG. 7 is a drawing from the ‘228 patent;

FIG. 8 is a drawing from the ‘612 patent;

FIG. 9 is a drawing from the ‘607 patent;

FIG. 10 is a drawing from the ‘342 patent;
DETAILED DESCRIPTION

Referring in detail to the accompanying drawings, attention is directed first to Figure 1. A panel 40 contains a plurality of bars 42 which can be arranged either vertically horizontally, or diagonally. These generally vertical panels 40, are free to translate in one direction, and are fixed in the other two. The panels 40 might be constructed out of any rigid material such as wood, plastic, or metal.

Attached to the top of panel 40, are one or more deadbolts 70 which rest in the panel and may extrude out to fit into an opening in the lower sash. Deadbolts 70 contain holes 72 perpendicular to the plane of motion. Deadbolts 70 must be sufficient in number and in strength such that they provide enough support to prevent a child from falling out of the window. In the same manner, the holes 72 must be of appropriate size.

Window guard 40 rests in between a pair of dividers 12, which are sized to be very thin because of the constraints of fitting multiple panels in the fixed space of a wall. These lie in a housing 10, which is a wall in this embodiment, but could also be an external device fixed against the outside or inside of the wall. Separate panels 40 lie between additional dividers 12, and all panels 40 remain parallel to one another.

In this suggested embodiment, a panel 40 contains a screen mesh 50 for the purpose of keeping insects from entering the household. A removable window sill 60 contains a plurality of attached engaging rods 62. The engaging rods 62 should be rigid enough, and long enough that provide enough support to keep the panels in contact with the lower window sash. The engaging rods 62 maintain the same distance from their centers as the holes 92 in the lower window sash 90, and the holes 72 in the deadbolts 70. The holes 72, 92, and the engaging rods 62, lie parallel to each other in at least one plane.

The engaging rods 62 must be shaped so that they fit comfortably through both holes 72 and 92. To assist in this manner, appropriately sized bearings can be used. The lower sash 90, remains connected to the upper sash 100 and the lower sash 90 can slide transversely relative to the fixed upper sash 100, in the same dimension that the panels 40 are able to translate.

Now directing attention to Figure 2, we can see the elements of Figure 1, from a different view. This figure also illustrates holes 94, sized so that the deadbolts 70 fit through them when the window is in a closed position, and located at the bottom of the lower window sash 90. These holes are parallel to the deadbolts 70, and perpendicular to the holes 92.

This figure also illustrates slots 46 which rest in the panels 40, and allow the deadbolts 70 to rise and lower. These slots 46 can be a variety of mechanisms such as a key-operated, button-operated, or switch-operated deadbolt.

To engage a panel 40 to be lifted along with the lifting of the removable window sill 60, the deadbolts 70 must be turned into their extruded position through the use of 46 while the lower sash 40 is flush against the
housing 10. Then the removable window sill 60 is inserted into the lower window sash 90, so that the engaging rods 62 pass through the holes 92, and the holes 72. Then the removable window sill 60 is lifted, pulling up the engaged panel(s) 40.

Now directing attention to Figure 3, we can see the elements of Figure 1 and Figure 2, from a different view.

Now directing attention to Figure 4, we can see a side view of the embodiment in a closed position. In this figure, each view shows the removable window sill 60 having engaging rods 62 passing through both deadbolt holes 72 and rod-engaging holes 92.

Now directing attention to Figure 5, we can see a more detailed view of the lower window sash 90. An additional element in this drawing is the window glass 95.

Now directing attention to Figure 6, we can see a more detailed view of a typical panel 40. The elements within panel 40 such as the bars 42 or the screen mesh 50 can comprise many different embodiments which still fall under the scope of the invention. These elements can serve many different functional purposes, and can be customized for ornamental desires.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

While the present invention is most directly related to double hung windows, the scope of the invention might relate to terraces for which panels might rest underneath a ledge, or various other places where retractable panels may be installed in between the outside and inside of a home.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to falling within the scope of the invention.
What is claimed is:

1. A window assembly for use in a window with a transversely opening sash comprising:
   
a) a plurality of panels constrained to motion in the same direction as motion of the sash;

b) extrusions from the top of each panel which fit into the bottom of the sash;

c) openings in the extrusions that face away from the direction of motion of the panels;

d) openings in the sash which match the openings of c) and overlap the openings in a plane away from the direction of motion of the panels;

e) a plurality of rods which are shaped to fit through the openings of c) and d) such the panels a) can be secured to be pulled along with the sash.

2. The window assembly of claim 1, further comprising: a removable grip for the lower sash comprising: a base handle, and a plurality of rods which are attached to the base handle and are shaped to fit through the openings of c) and d) such that the panels a) can be secured to be pulled along with the sash.
Isometric View of the Invention

Figure 1
Front View of the Invention

Figure 2
Side View of the Invention

Figure 3
Side View of the Invention in a Closed and Engaged Position

Figure 4
Detailed Drawing of the Lower Sash

Figure 5
Detailed Drawing of a Typical Panel

Figure 6
Drawing from the '228 Patent

Figure 7
Figure 9
Drawing from the '342 Patent

Figure 10
<table>
<thead>
<tr>
<th>Document Number</th>
<th>Publication Date</th>
<th>Name of Patentee or Applicant of Cited Document</th>
</tr>
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<tbody>
<tr>
<td>US- 104,228</td>
<td>06-14-1870</td>
<td>W.K. Thomas</td>
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<tr>
<td>US- 521,607</td>
<td>06-19-1894</td>
<td>T. Euphrat</td>
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<td>US- 879,342</td>
<td>02-18-1908</td>
<td>S.R. Wells</td>
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<td>US- 993,654</td>
<td>05-30-1911</td>
<td>L. Conant</td>
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<td>US- 1,301,889</td>
<td>04-29-1919</td>
<td>M. Wilson</td>
</tr>
<tr>
<td>US- 1,552,612</td>
<td>08-13-1924</td>
<td>M. Kelley</td>
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<tr>
<td>US- 5,461,827</td>
<td>10-31-1995</td>
<td>N. Lofton</td>
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<td>Prior Art</td>
<td>Elements</td>
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Mock Obviousness Rejection from Patent Examiner

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Euphrat et al. (521,607) in view of Wilson (1,301,889). Euphrat '607 discloses a window guard that is concealed when the window is in a closed position and is carried by the window sash. Wilson '889 discloses a quick-release mechanism to drop the bars that comprise the window guard. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the quick-release mechanism of Wilson '889 with the window guard and shade combination of Euphrat '607. With respect to the amount of attachments or the use of a panel to encase the attachments, it would have been an obvious matter of design choice to modify the size or shape of the attachments. A change in size and shape is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459,105 USPQ 237 (CCPA 1955).

CONCLUSION

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shown are window guards analogous to applicant's instant invention.
My Response to Mock Obviousness Rejection

Claim Rejections under 35 USC §103

Claim 1 is rejected under 35 USC §103 as being obvious over Euphrat. The guard and shade attachments operate by different mechanisms in the Euphrat patent than they do in the present invention. The Euphrat patent uses a plurality of bars for the guard and a roller for the shade attachment while the present invention uses standard sized panels. There exists no combination of window guard and shade attachment in which the shade is a rigid screen and operates by the same mechanism as the guard. Using a panel to encase the plurality of bars is not merely a change in size or shape because the use of a panel allows the window guard to be interchanged with the other attachments in the proposed invention and furthermore allows for ease of ornamental customization during manufacture. Using standard sized panels teaches the customization and swapping of panels which is clearly not taught by any combination of the cited patents.

Wilson is cited by the examiner to show a quick-release present in a window guard but the quick-release taught in the Wilson patent would not work with the proposed invention because it would only be capable of dropping a single panel. The orientation of the quick-release in the present invention discloses how to drop multiple panels;

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.