Nov. 30, 1965 H. LEISER 3,220,465

WINDOWS

Filed May 17, 1963 2 Sheets-Sheet 1

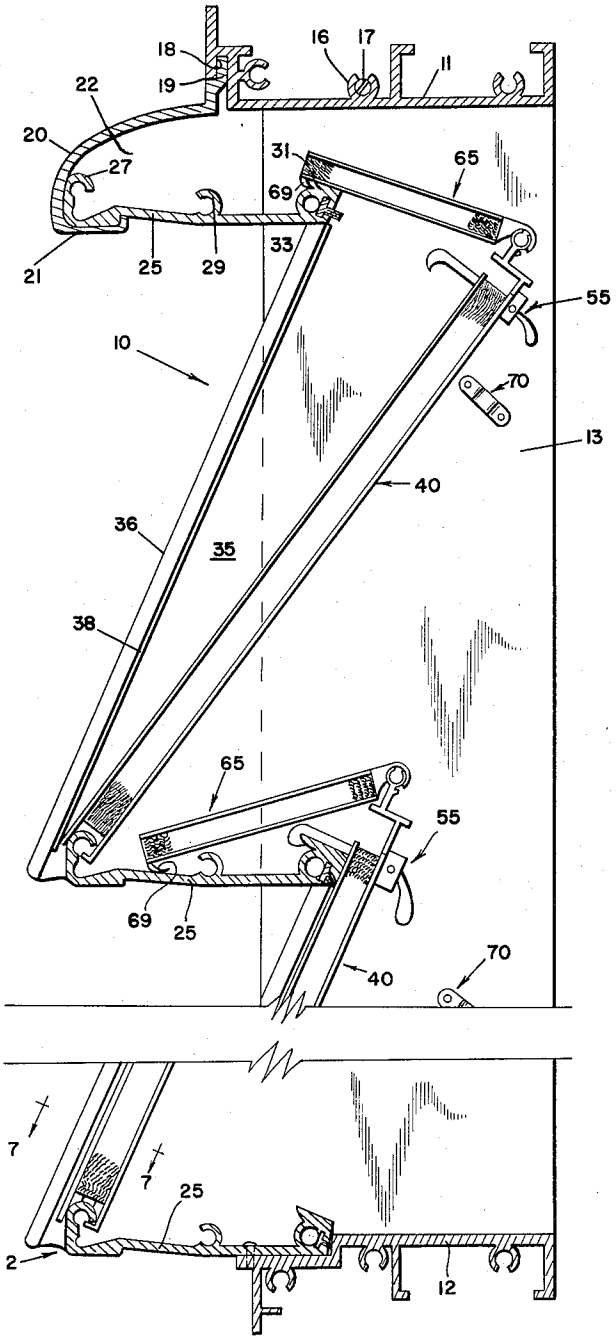

FIG. 1

INVENTOR

HENRY LEISER

BY Irvin A. Lavine

ATTORNEY

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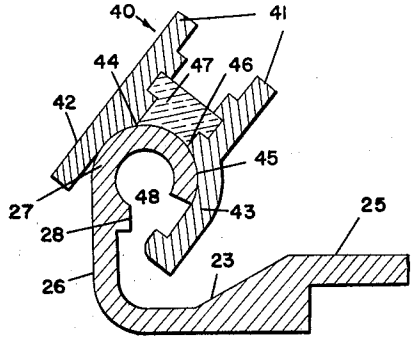

FIG. 2

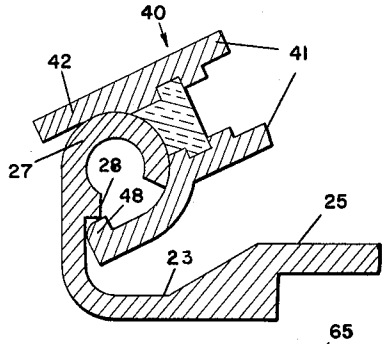

FIG. 3

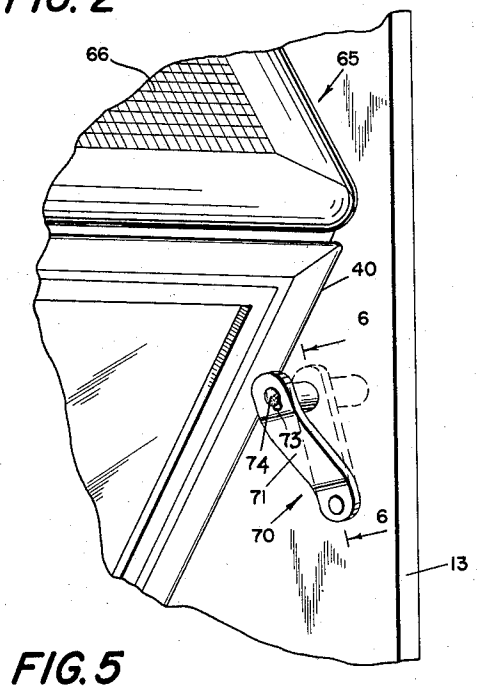

FIG. 5

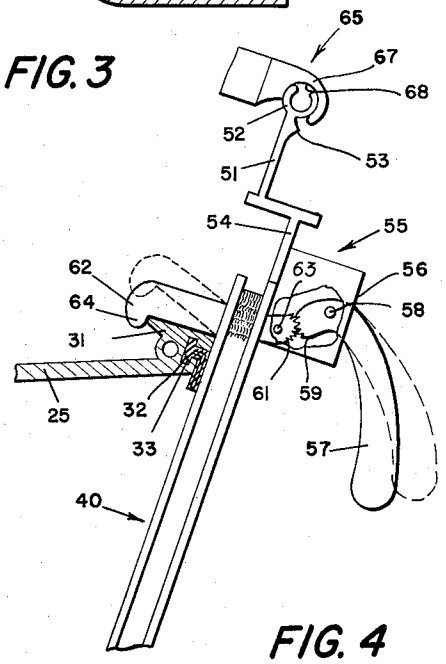

FIG. 4

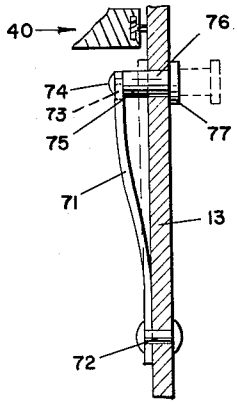

FIG. 6

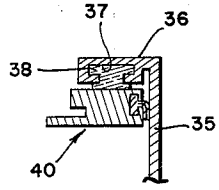

FIG. 7

INVENTOR

HENRY LEISER

BY Irvin A. Lavine

ATTORNEY

United States Patent Office 3,220,465 Patented Nov. 30, 1965

3,220,465

WINDOWS

Henry Leiser, % 3-D Windows, Inc., Mile High Center, Room 1402, Denver, Colo.

Filed May 17, 1963, Ser. No. 281,157
8 Claims. (Cl. 160—92)

The present invention relates to windows, and more particularly to windows having sashes which are hinged at their lower ends for swinging movement between opened and closed positions, and which sashes have screened frames pivotally connected to their upper ends.

For many years, double-hung windows and casement type windows, pivotal about vertical axes, have been widely used in the construction of residential and commercial buildings. In recent years, however, such windows have not satisfied all of the requirements of designers, builders and users, and other types of windows have been suggested to obtain greater entry of light, better weather proofing, more attractive appearance, or for other reasons.

Among the windows which have found wide spread use are the louver windows, which are characterized by a multiplicity of glass panes, each of which is approximately 4 inches or 6 inches high, the panes being swingably mounted about horizontal axes for opening and closing movements. These louver windows require a large number of parts, and thus are somewhat expensive. They are difficult to seal, so that louver windows are seldom used in colder climates, except in such places as porches and breezeways. In addition, this type of window, to be screened, requires the entire opening to be screened or else requires attachments or the like extending from each of the glass louver elements, either arrangement being somewhat more expensive than desirable.

In another form of window, relatively large panes were mounted in vertical array, each of the panes being inclined. Generally, such windows were characterized by inadequate ventilation openings and inadequate screening. They were complex in construction, particularly if the window sashes were movable in addition to being inclined. Such windows generally were not secure against unauthorized removal, particularly when opened, so that entry into a building through such a window was not prevented. Such windows also were generally difficult to clean, particularly the outside of the window panes, and were difficult to reglaze.

An object of the present invention is to provide a window which will have an ornamental and pleasing appearance.

Another object of the present invention is the provision of a window which may be readily and adequately opened to provide ventilation into the building.

Yet another object of the present invention is to provide a window having a self-contained shading element.

A further object of the present invention is the provision of a window providing a minimum obstruction to the entry of light.

A still further object of the present invention is to provide a window which will be secure in either opened or closed position against unauthorized removal and which will not permit unauthorized entry into the building in which the window is located.

Another object of the present invention is the provision of a window which may be readily removed from the interior of the building to permit cleaning of the exterior of the pane, or reglazing.

Yet another object of the present invention is to provide a window which will be economical in construction

and readily fabricated of parts and materials which are readily available.

Still another object of the present invention is the provision of a multiple-section window permitting indirect ventilation of a room through each section thereof.

A further object of the present invention is to provide a window which will prevent accidental falling therefrom or therethrough, as by children.

Still another object of the present invention is the provision of a window meeting the above desideratum and including a screen which is moved into position when the window is opened.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a vertical cross-sectional view, with parts broken away, of a window in accordance with the present invention.

FIG. 2 is an enlarged view of the area designated by the arrow **2** on FIG. 1.

FIG. 3 is a view similar to FIG. 2, but with the parts in a different position.

FIG. 4 is an enlarged view, with parts broken away, of a locking arrangement for the window of FIG. 1.

FIG. 5 is a perspective view of a portion of the window of FIG. 1, showing a security lock.

FIG. 6 is a cross-sectional view taken on the line **6—6** of FIG. 5.

FIG. 7 is a cross-sectional view taken on the line **7—7** of FIG. 1.

Referring now to the drawings, wherein like or corresponding parts are designated by like or corresponding reference characters throughout the several views, there is shown in FIG. 1 a window generally designated **10** comprising a header **11**, a sill **12** and a pair of jambs, jamb **13** being shown. The several parts of the window, including the sashes, are preferably made of extruded aluminum. Header **11** and sill **12** have crescent shaped channels **16** integrally formed thereon, as during the extrusion process by which they were made, to provide receiving elements for screws. By this construction, the jamb **13** may be secured to header **11**, for example, by screws inserted through the jamb **13** and screwed into the crescent shaped channels **16**, one such screw being shown at **17**.

Header **11** has near its outside edge a groove **18** into which extends a flange **19** of a drip cap **20**. As may be seen, drip cap **20** extends outwardly and downwardly from the outer edge of header **11** and has a lower horizontal flange **21**. The end of the drip cap **20** is closed by a suitable plate **22**.

A fixed shelf **25** extends inwardly from the drip cap **20**, and lies in a plane parallel to and below the header **11**. At its outer edge, as shown in FIG. 2, fixed shelf **25** has an upstanding flange **26** with an upper curved end **27**. Extending inwardly from flange **26** is an abutment **28**, and below the free extremity of curved end **27** is a recessed portion generally designated **23**.

Referring again to FIG. 1, it will be seen that shelf **25** has at an intermediate part thereof an outwardly facing hook element **29**, and at its inner edge has another outwardly facing hook element **31** (see also FIG. 4) and a groove **32** in which is lodged a longitudinally extending weather strip **33**.

A second, intermediate fixed shelf **25** is positioned generally below and parallel to the upper fixed shelf **25**, and has the same shape. A side plate **35**, of generally triangular configuration, is secured to the jamb **13**, and has at its outer, inclined edge a laterally inturned flange **36** (see FIG. 7) with a recess **37** therein which receives

weather stripping 38. As will be understood, there is a similar side plate and side rail opposite the side plate 35 and side rail 36. The side rail 36 is inclined, and extends from the inner edge of the upper shelf 25 downwardly to the outer edge of the intermediate shelf 25.

A glazed sash 40 is provided, formed of extruded aluminum sections and including a bottom rail 41 which may be seen in FIGS. 2 and 3 to include an outer flange 42 and an oppositely disposed inner flange 43 defining between them a groove having a pair of arcuate connecting portions 44 and 45 separated by an opening 46 in which is weather stripping 47 having an outer face which connects the arcuate portions 44 and 45. At the lower end of the inner flange 43 is an outwardly facing flange 48. The curved end 27 of fixed shelf 25 forms a bearing surface for the bottom rail 41 of sash 40, so that sash 40 may pivot, as between the positions shown in FIGS. 2 and 3. As will be understood, the arcuate portions 44 and 45 will bear upon and be journaled on the curved end 27, and the arcuate face of weather strip 47 will always be in contact with the outer surface of curved end 27. As shown in FIG. 3, movement of the window in an opening direction is limited by the engagement of flange 48 with abutment 28. In addition, translational movement of sash 40 away from the curved end 27 (upwardly and to the right as shown in FIG. 2) would be stopped after a limited amount of movement by engagement of flange 48 with the free extremity of curved end 27 of flange 26. However, when sash 40 has been moved to the position shown in FIG. 3, in an opening direction, with recess 23 permitting movement of sash 40 without engagement of flanges 43 and 48 with the lower part of fixed shelf 25, the entire sash 40 may be removed from engagement with fixed shelf 25 by sliding it in its plane generally upwardly and to the right as seen in FIG. 3. Separation is permitted because flange 48 will not strike the free extremity of curved end 27 since it will clear the free extremity of curved end 27 as the entire sash 40 is moved on a bearing engagement between the underside of flange 42 and the outer surface of curved end 27.

At its upper edge, sash 40 has an upstanding flange 51 (see FIG. 4) with a generally cylindrical terminal portion 52, and a lug 53 immediately below terminal portion 52. Below flange 51 is a second upstanding flange 54 having a latch device 55 secured to it, at approximately its lateral mid point. Latch device 55 includes a housing 56, parts of which are shown broken away, with a handle lever 57 pivoted at 58 therein. Handle lever 57 terminates within the housing 56 in gear teeth 59 which are in mesh with gear teeth 61 on a latch element 62. Latch element 62 is pivoted in the housing 56 at 63 and has a hooked end 64 which may be engaged with the hook element 31 of fixed shelf 25.

A frame 65 having the screen 66 (see FIGS. 4 and 5) therein is provided with an inner rail 67 having a longitudinally extending cylindrical recess 68 which receives the cylindrical portion 52 of sash 40, to thereby permit relative pivotal movement between sash 40 and frame 65. Such pivotal movement is limited by the lug 53. The frame 65 may be separated from sash 40 merely by sliding movement along the axis of cylindrical portion 52. Along its outer edge, frame 65 is provided with an inwardly turned hook element 69 which may engage either hook element 29 of fixed shelf 25 or with hook element 31 thereof as is shown in the upper portion of FIG. 1 to hold the sash 40 in partly opened or fully opened position.

A security lock 70 is provided and comprises a spring strip 71 (see FIGS. 5 and 6) secured at one end by a rivet 72 to the jamb 13 and having at its other end a slot 73 which receives a head 74 of a pin 75. Pin 75 extends through a hole 76 in jamb 13 and has a large, flattened head 77 on the side of jamb 13 opposite spring strip 71. Consequently, and as will be understood, the pin 75 may be pushed to the dotted line position, against the force of spring strip 71, to thereby permit the sash 40 to be rotated in an opening direction (clockwise, as shown). As will be seen from the upper section of FIG. 1 and from FIG. 6, the sash 40 is in its fully opened position, with hook element 69 of frame 65 in engagement with hook element 31 of fixed shelf 25. In this position, sash 40 does not contact security lock 70, but is slightly spaced therefrom. Also, in this position, the bottom portion of sash 40 is in substantially the position shown in FIG. 2, relative to curved end 27.

The sash 40 in the lower section of window 10 is shown in the closed position, and it will be seen that the hooked end 64 of latch device 55 is in engagement with the hook element 31 (see also FIG. 4) of intermediate fixed shelf 25. The frame 40 is pressing against weather stripping 38 in the side rails 36, as is seen in FIG. 7, the weather strip 47 in the frame 40 is against the curved end 27 of the lower shelf 25 and at its upper end the frame 40 presses against the weather strip 33 in intermediate shelf 25. There is thereby provided a completely secure and weather proof closure. The frame 65 with its screen 66 is stored above the intermediate shelf 25, its outer end resting on intermediate shelf 25 as permitted by the free pivotal movement between frame 65 and sash 40. The sash 40 is thereby inclined, having a pleasing and distinctive appearance and is secure against unauthorized entry in this position. The frame 65 is stored in an out of the way position, and one which permits the sash 40 above it to be opened, as shown in FIG. 1.

When it is desired to open the sash 40, the handle 57 of the latch device 55 is manipulated to raise the end 62, thereby permitting the sash 40 to swing inwardly, pivoting on curved end 27 of shelf 25. To provide for an intermediate opened position, the hook element 69 of frame 25 may be engaged with hook element 29 of fixed shelf 25, or the sash 40 may be moved to the fully open position, which is shown in the upper portion of FIG. 1. In this position, the hook element 69 of frame 65 engages with the hook element 31 of fixed shelf 25. While the sash 40 and frame 65 may be manipulated from the outside, with eventual disengagement of hook elements 31 and 69, and further clockwise rotation of sash 40, sash 40 may be rotated in an opening direction only until it engages with the two security locks 70. Further opening movement of sash 40 can then be accomplished only by depressing security locks 70 as above described, and this can be accomplished only from within the building; frame 65 may be rotated a limited amount as rotation is restricted by lug 53. Thus, an intruder could only effect movement of the sash 40 inwardly until engagement with security lock 70. Further, the sash 40 may not be removed from engagement with fixed shelf 25 because security lock 70 will prevent it from moving to the position shown in FIG. 3 in which it can be withdrawn from such engagement by translational movement.

There has been provided a window construction having an attractive and distinctive appearance. This construction may be readily fabricated, and as will be understood all materials used therein are readily accessible. While children and others having a tendency to lean against a window could fall out of ordinary windows, such action would only tend to close the window of the present invention. The sash may be removed from the window after manipulation of the security lock from within the building, to thereby permit cleaning and reglazing of the sash. The ventilation obtained is indirect, adequate, variable and independent from sash to sash. The window herein provided is fully weather stripped.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. In a window, a shelf, spaced abutment means extending from the inner edge of said shelf generally downwardly, bearing means extending along an axis adjacent and between the lower ends of said abutment means, a glazed sash having at the lower edge thereof means cooperating with said bearing means for permitting rotational movement of said sash thereon, a screened frame pivotally connected along one edge to the upper edge of said glazed sash, said glazed sash being rotatable into a closed position in which it contacts said abutment means and the inner edge of said shelf.

2. A window as defined in claim 1, said shelf having hook means thereon, said glazed sash having a latch device thereon engageable with said hook means when said glazed sash is in the closed position thereof.

3. In a window, a first shelf, spaced abutment means extending from the inner edge of said shelf downwardly and outwardly to a second shelf lying beneath said first mentioned shelf, said second shelf having transversely extending bearing means thereon adjacent the lower ends of said abutment means, a glazed sash having at the lower edge thereof means cooperating with said bearing means for permitting rotational movement of said sash thereon, a screened frame pivotally connected along one edge to the upper edge of said glazed sash, said glazed sash being rotatable into a closed position in which it contacts said abutment means and the inner edge of said first shelf, said screened frame overlying said first shelf when said glazed sash is in said closed position.

4. In a window including a header and parallel side jambs, a fixed shelf lying in a plane beneath said header, said shelf at the upper portion of the inner edge thereof having outwardly facing hook means, side rail means extending adjacent each jamb from the inner edge of said shelf downwardly and outwardly to a second fixed shelf lying beneath said first mentioned fixed shelf, said second fixed shelf having transversely extending bearing means thereon adjacent the lower ends of said side rail means, a glazed sash having at the lower edge thereof means cooperating with said bearing means for permitting rotational movement of said sash thereon, a screened frame pivotally connected along one edge to the upper edge of said glazed sash, said screened frame having a hook on the lower side of the edge opposite said one edge thereof adapted to engage with said hook means of said first shelf when said glazed sash is in a position at an angle with said side rail means, said glazed sash being rotatable into a closed position in which it contacts said side rail means and the inner edge of said first shelf, said screened frame overlying said first shelf when said glazed sash is in said closed position.

5. In a window, including side jambs, a fixed horizontal shelf having on the upper portion thereof outwardly facing

hook means, side rail means extending adjacent each jamb from the inner edge of said shelf downwardly and outwardly to a second fixed shelf lying beneath said first mentioned shelf, said second fixed shelf having transversely extending bearing means thereon adjacent the lower ends of said side rail means, a glazed sash having at the lower edge thereof means cooperating with said bearing means for permitting rotational movement of said sash thereon, a screened frame pivotally connected along one edge to the upper edge of said glazed sash, said screened frame having a hook on the lower side of the edge opposite said one edge thereof adapted to engage with said hook means of said first shelf when said glazed sash is in a position at an angle with said side rail means, said glazed sash being rotatable into a closed position in which it contacts said side rail means and the inner edge of said first shelf, said screened frame overlying said first shelf when said glazed sash is in said closed position.

6. A window as defined in claim 5, said glazed sash having a latch device thereon engageable with said hook means when said glazed sash is in the closed position thereof.

7. In a window including side jambs, a shelf, spaced abutment means extending adjacent each jamb downwardly from the inner edge of said shelf, bearing means extending along an axis adjacent and between the lower ends of said abutment means, a glazed sash having at the lower edge thereof means cooperating with said bearing means for permitting rotational movement of said sash thereon, a screened frame pivotally connected along one edge to the upper edge of said glazed sash, said glazed sash being rotatable into a closed position in which it contacts said abutment means and the inner edge of said shelf, and detent means on a said jamb for limiting opening movement of said sash.

8. The window of claim 7, said detent means comprising an axially movable pin extending transversely through said jamb.

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HARRISON R. MOSELEY, *Primary Examiner.*