March 15, 1966 H. W. KELLEHER ET AL 3,240,259

UNDER SCREEN WINDOW OPERATOR

Filed Oct. 1, 1963 2 Sheets-Sheet 1

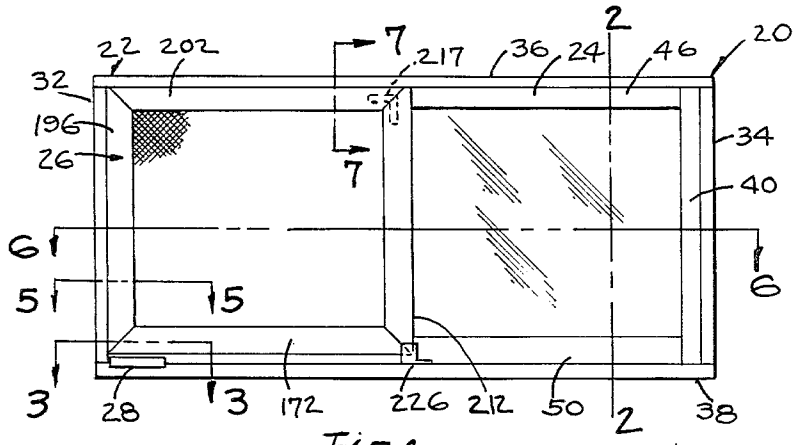


Fig. 1.

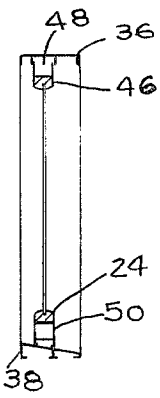


Fig. 2.

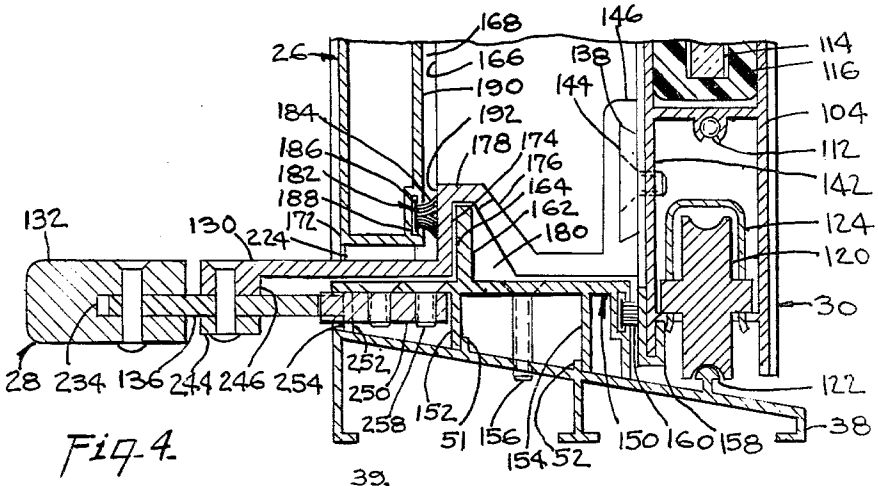


Fig. 4.

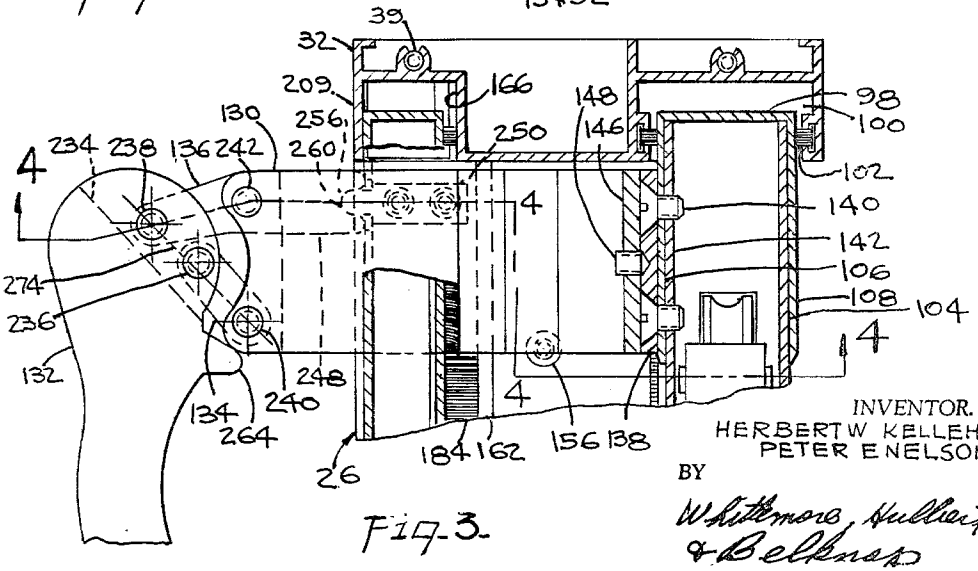


Fig. 3.

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UNDER SCREEN WINDOW OPERATOR

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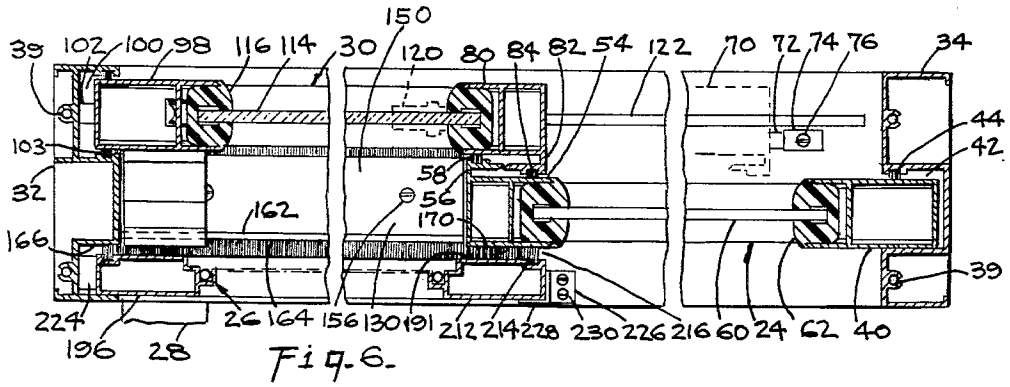


Fig. 6.

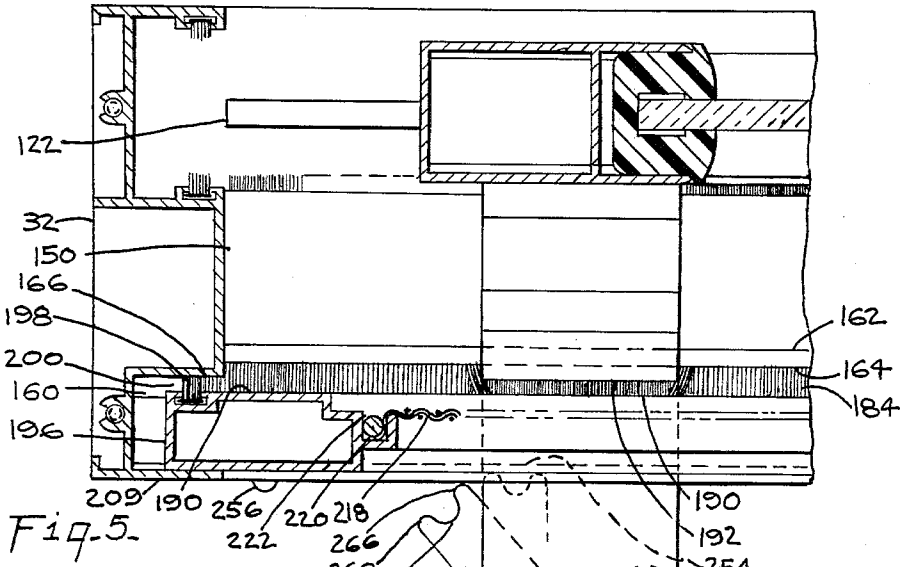


Fig. 5.

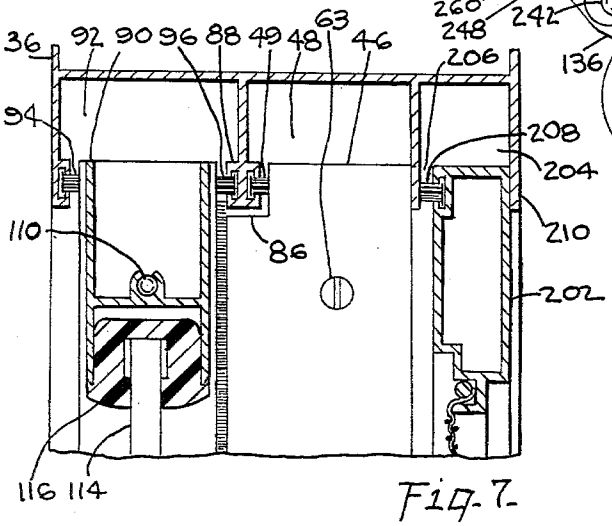


Fig. 7.

INVENTOR.
HERBERT W. KELLEHER
PETER E. NELSON
BY
Whittemore, Hulbert & Belknap

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UNDER SCREEN WINDOW OPERATOR

Herbert W. Kelleher, 709 Trombly, Grosse Pointe Park, Mich., and Peter E. Nelson, 5775 Hereford, Detroit 24, Mich.

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12 Claims. (Cl. 160—103)

This invention relates to a closure construction of the sliding type adapted for exterior walls of buildings and relates more particularly to a novel combined operator and latch for, as an example, a metal window or the like. The operator and latch or locking handle of the present invention is operatively connected to the ventilator or sliding closure panel of the window for moving the ventilator horizontally in the opening of the frame to open and close the window.

The window includes a frame having a horizontally movable ventilator or sliding closure panel therein as well as a fixed closure panel. The sliding closure panel is positioned at the outer side or exterior of the frame when the frame is installed in the opening of a building structure and the fixed closure panel is positioned towards the inner side or interior of the frame in relation to the sliding closure panel. An insect screen panel closes the opening which remains when the ventilator is in an open position. It is desirable to position the screen panel between the inner stile of the fixed closure panel and a jamb member of the frame, with the screen panel being located on the inner side of the fixed closure panel adjacent the interior of the building structure.

With such a construction the fixed closure panel is located in a plane intermediate the sliding closure panel and the screen panel. The screen panel overlies the sliding closure panel when the sliding closure panel is in a closed position. It is desirable to operate the sliding closure panel from the interior of the building and it is also desirable to accomplish this purpose without removing the screen panel. The window is of a design which prevents insects or dirt from entering the interior of the building structure through openings which are required for the operating mechanism for the sliding closure panel.

The window is designed for weather resistance and tightness in general and is further designed to prevent insects and dirt from entering the interior of the building structure when the sliding closure panel is in an open position. It is also important that weather tightness be achieved by a construction which can be shipped in knockdown condition and accurately assembled at the job site with minimum labor and time. Prior sliding windows have been proposed to meet this requirement but have been accompanied with certain disadvantages with respect to assembly, tightness, proper adjustment and attractiveness of the window. Other disadvantages relate to the location of the weatherseal strips or elements and their relation with respect to the operator of the sliding closure panel.

It is an object of the present invention to provide a sliding closure construction which comprises a frame adapted to be installed in the opening of a building structure, a fixed closure panel, a sliding closure panel, and a screen panel movable in the opening of the frame, with the sliding closure panel being located in the frame adjacent the exterior of the building structure and the screen panel being located in the frame adjacent the interior of the building structure, the bottom of the screen panel being spaced vertically above the frame sill, a longitudinally extending upstanding rib on the frame sill between and laterally spaced from the screen panel and the sliding closure panel, resilient weatherstrip means interposed between the bottom rail of the screen panel and the rib to close the lateral space between the screen panel

and the rib to prevent the entrance of foreign matter into the interior of the building structure through said lateral space, and an operator operatively connected to the sliding closure panel and extending laterally therefrom towards the interior of the building structure across the top of the rib and through the lateral space between the rib and the screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between the screen panel and the sill member.

Another object of the present invention is to provide a sliding closure construction of the aforementioned type wherein the operator terminates in a handle located on the interior of the building structure, said operator being movable longitudinally through the space between the screen panel and the frame sill to open and close the sliding closure panel, said weatherstrip means being in sealing engagement with the movable operator at all times.

Still another object of the present invention is to provide a sliding closure construction of the aforementioned type wherein means is provided which is operatively connected to the operator and engageable with the frame sill for locking the sliding panel when in a closed position in the frame.

A further object of the present invention is to provide a structure of the aforementioned type wherein a combined operator and latch is provided for moving the sliding closure panel without removing the screen panel.

A still further object of the present invention is to provide a window of the sliding type which has a combined operator and latch operatively connected to the ventilator, with the operator passing beneath the screen panel without leaving an opening for the entrance of insects or dirt. This is accomplished by means of the weatherstrip means mentioned previously.

Another object of the present invention is to provide a structure of the aforementioned type wherein a combined lock and operating handle is provided which will hold the ventilator in partially opened positions.

Still another object of the present invention is to provide a novel sliding window construction of exceptional weather tightness when the ventilator is closed and which is designed to prevent the entrance of insects and dirt when the ventilator is opened.

It is thus another object of this invention to provide a simplified low cost structure of the aforementioned type having certain advantages contributing to efficiency, reliability and long life as well as ease of maintenance.

Other objects and features of the invention will become apparent as the description proceeds and when taken in conjunction with the accompanying drawings.

FIGURE 1 is an elevation of the side of the window that faces the inside of a building structure.

FIGURE 2 is a sectional view taken on the line 2—2 of FIG. 1.

FIGURE 3 is a sectional view taken on the line 3—3 of FIG. 1 looking in the direction of the arrows and rotated 90 degrees clockwise and partly broken away to illustrate certain features of the invention.

FIGURE 4 is a sectional view taken on the line 4—4 of FIG. 3 and looking in the direction of the arrows.

FIGURE 5 is a sectional view similar to FIG. 3 and showing the window in a partially open position.

FIGURE 6 is a sectional view taken on the line 6—6 of FIG. 1 and looking in the direction of the arrows.

FIGURE 7 is a sectional view taken on the line 7—7 of FIG. 1 and looking in the direction of the arrows.

Referring to FIGURE 1 of the drawings, the window or closure of the sliding type is designated by the numeral 20 and comprises a frame 22, a fixed closure panel 24, a screen panel 26, a combined locking and operating handle 28, and a movable ventilator or sliding closure panel 30

which is best illustrated in FIGURE 6. FIGURE 1 shows the side of the window **20** that faces the inside of a building structure. When reference is made to the window **20** the "inside or interior" will refer to the side of the window **20** at the room or inside of the building structure and the "outside or exterior" will refer to the side at the exterior or weather side of the building structure.

The frame and closure panels preferably are fabricated from aluminum extrusions. The frame **22** has a vertical jamb member **32** on the side adjacent the ventilator **30**, a vertical jamb member **34**, a horizontal head member **36** and a sill member **38**. The frame members are held together at the corners by screws indicated at **39** as is conventional in the art.

The jamb stile **40** of the fixed closure panel **24** projects into an elongated recess **42** (FIG. 6) of the jamb member **34**. A weatherstrip **44** prevents the entrance of air and moisture around the opening. The top rail **46** of fixed panel **24** projects into a recess **48** provided in the head member **36** of the frame **22** as best illustrated in FIGURE 7. A weatherstrip **49** projects into the opening. The horizontal bottom rail **50** of fixed panel **24** sets on the sill member **38** (FIG. 2) and is positioned and held in place laterally by the upstanding elongated ribs **51** and **52** (FIG. 4) which are provided on the sill member **38**. The ribs **51** and **52** extend across the entire length of the sill member **38**. The vertical meeting rail or inner stile **54** of fixed panel **24** has an extending portion **56** retaining a weatherstrip **58** as best illustrated in FIGURE 6. A pane of glass **60** is held in place in the fixed closure panel **24** by the resilient retaining strip **62**. The retaining strip **62** extends around the periphery of the glass. Screws indicated at **63** hold the stiles and rails together at the corners as illustrated in FIGURE 7.

The ventilator **30** positioned at the exterior side of the frame **22** moves longitudinally from the closed position to the open position represented by the dotted lines **70** as best illustrated in FIGURE 6. A resilient bumper **72** limits the movement of the ventilator **30**. The bumper **72** is held by the bracket **74** that is attached to the sill member **38** by the screw **76**. The meeting rail or inner stile **80** of the ventilator **30** has an extending portion **82** that meshes with portion **56** of the inner stile **54** of the fixed panel **24**. The weatherstrips **84** and **58** combine to form a weather tight joint between the meeting rails or inner stiles when the ventilator **30** is in a closed position. The portions **56** and **82** are cut away as indicated at **86** in FIG. 7, to clear the projecting portion **88** on the head member **36**.

The top rail **90** (FIG. 7) of the ventilator **30** extends into a recess **92** of the frame **36**. Weatherstrips **94** and **96** provide a seal. The jamb side member or inner stile **98** of the ventilator **30** extends into a recess **100** of the jamb member **32**. A resilient bumper **102** limits the movement of the ventilator **30** in the closed position. Weatherstrips **103** provide a seal.

The horizontal bottom rail **104** extends between the meeting rail or inner stile **80** and the jamb stile **98** of the ventilator **30** as illustrated in FIGURE 3. The width of the bottom rail **104** is dimensioned to have a snug fit in between the walls **106** and **108** of the jamb stile **98** as best seen in FIG. 3. The bottom rail **104** also fits in the meeting rail or inner stile **80** and the top rail **90** fits in the stiles **98** and **80** in the same manner to form the corners of the ventilator. Screws indicated at **110** and **112** in FIGURES 4 and 7 hold the panel members in place. A pane of glass **114** is held in the ventilator **30** by the resilient strip **116**. The strip extends around the periphery of the glass.

A pair of rollers **120** rides on the rail **122** and supports the ventilator **30** while moving from open and closed positions. The rollers **120** are attached to the bottom rail **104** by brackets **124**. Rail **122** is an integral part of and extends longitudinally along the sill member **38**.

To move the ventilator **30** on the track **122** and lock the ventilator **30** in a closed position the combined latch and operator **28** is provided. The operator **28** has an elongated bracket **130** that extends from the ventilator **30** inwardly beyond the screen **26**. A handle **132** allows for locking and operating the ventilator **30** without removing the screen panel **26**. The handle **132** is connected to the bracket **130** by the links **134** and **136**.

A dovetail shaped plate **138** is attached to the ventilator **30** by screws **140**. The plate **138** is positioned at an intersecting corner of the ventilator **30**, with the screws **140** passing through the walls **106** and **142** of the bottom rail **104** and the jamb stile **98** respectively. The plate **138** has a tight sliding fit in a matching groove **144** in the portion **146** upstanding at the end of the bracket **130**. A screw **148** secures the bracket **130** to the plate **138**.

A detachable sill **150** has ribs **152** and **154** that engage the elongated ribs **51** and **52** respectively provided on the sill member **38**, to hold the detachable sill **150** in place laterally. The detachable sill **150** extends longitudinally between the jamb member **32** of the frame **22** and the meeting rail or inner stile **54** of the fixed closure panel **24**. Screws **156** hold the detachable sill **150** in place on the sill member **38**. A strip **158** attached to the wall **142** of the bottom rail **104** provides a continuous surface across the length of the ventilator **30** for the weatherstrip **160** to bear against.

An upstanding rib **162** which is best illustrated in FIGURE 4 is positioned on the detachable sill **150** so that the side surface **164** is offset from the surface **166** of the recess **168** provided in the jamb member **32** in a direction away from the screen panel **26**. The screen panel **26** is positioned at the interior side of the frame **22**. Surface **164** is also offset from the surface **170** of the inner stile **54** in a direction away from the screen panel **26**.

The bracket extends underneath the horizontal bottom rail **172** of the screen panel **26** and the portion **174** passes upwardly between said bottom rail **172** and the rib **162** closely adjacent the surface **164**. Portion **176** slopes downwardly and horizontally to join portion **146**. Portion **178** connects portions **174** and **176** to form a grove or downwardly opening slot **180** that receives the rib **162** as best illustrated in FIGURE 4.

Weatherstrip **182** is of the type having flexible pile **184** that is attached to a strip **186**. The strip **186** fits in the slot **188** provided in the bottom rail **172** of the screen panel **26**. The pile **184** is of a width sufficient to span the space between the surface **190** of the bottom rail **172** and the surface **164** or the rib **162**. The pile **184** has a density sufficient to obstruct the passage of insects and dirt through the lateral opening between the aforesaid surface **190** and surface **164**. The density of the pile **184** also allows the pile **184** to flex and to be compressed between the surface **190** and the surface **166** of recess **168** and the surface **191** and surface **170** of the inner stile **54** as best illustrated in FIGURE 6.

As the operator **28** moves the ventilator **30** to open or closed positions, the portion **174** of the bracket **130** passes through the pile **184** flexing and compressing the pile **184** between the surface **190** of the screen **26** and the surface **192** of the bracket **130**. After the bracket **130** passes by, the pile **184** restores itself to the extended position closing the lateral opening between the surface **190** and the surface **164** of the rib **162** thereby keeping and maintaining the opening closed at all times.

The jamb stile **196** on the screen panel **26** extends into the recess **168** of the jamb member **32** and weatherstrip **198** provides a seal which closes the opening **200**. The top rail **202** of the screen panel **26**, as best illustrated in FIGURE 7, extends into the recess **204** of the head member **36** and weatherstrip **206** seals the opening **208**. Weatherstrips **198** and **206** can be omitted when the screen rail and stile members are held against the rib **209** of the jamb member **32** and the portions **210** of

the head member 36 to prevent the entrance of insects or dirt into the interior of the building.

The inner stile 212 of the screen 26 is positioned adjacent the meeting rail or inner stile 54 of the fixed panel 24 and has the weatherstrip 214 to close the opening at 216. The screen frame members 172, 196, 202 and 212 are interconnected at the corners with a mitre joint and held together by corner pieces indicated at 217 in FIGURE 1. Screen cloth 218 closes the frame opening and is held in place by the spline 220 that fits in the groove 222 extending around the inner periphery of the screen frame as best illustrated in FIGURE 5.

Spacer block 224 (FIG. 4) and spacer bracket 226 (FIG. 6) hold the screen panel 26 spaced vertically above the bracket 130 of the operator 28. The angular shaped upwardly extending portion 228 of the bracket 226 holds the screen panel 26 in place laterally and longitudinally. The bracket 226 is secured to the sill member 38 by screws 230.

In FIG. 3 of the drawings, the handle 132 is shown locking the ventilator 30 in a closed position. The handle 132 is slotted at 234 to receive the links 134 and 136. Rivets 236 and 238 secure the links 134 and 136 to the handle 132. Rivets 240 and 242 secure the links 134 and 136 respectively to the bracket 130. Rivets 240 and 242 also pass through the plate 244 that extends beneath links 134 and 136 and cooperate with the portion 246 of the bracket 130 to hold the links securely in place. The links 134 and 136 are free to pivot on the rivets. Link 136 has a portion 248 that extends toward the detachable sill 150. A lug 250 extends through an opening 252 in the wall 254 of the detachable sill 150, with the rounded portion 256 projecting outwardly beyond the room side of the wall 254. A rounded recess 260 provided in the link 136 engages the portion 256 of the lug 250. The lug 250 is secured to the detachable sill 150 by screws 258.

In FIG. 5 the ventilator 30 is shown in a partially opened position with the handle 132 in the unlocked position. By engaging the bracket 130 at point 262, the handle 132 is stopped from further clockwise rotation. The ventilator 30 is held in the partially opened position by moving the handle 132 counterclockwise until the portion 248 of the link 136 is in the position shown by the dotted lines in FIG. 5, with the rounded portions 266 and 268 engaging the wall 254 of the detachable sill 150. The ventilator 30 can be held by the locking handle or latch 132 in any partially opened position. The bumper 72 (FIG. 6) is positioned to stop the ventilator 30 in a fully opened position before the bracket 130 of the operator 28 strikes the meeting rail or inner stile 54 of the fixed closure panel 24.

When the ventilator 30 is moved to the closed position, with the handle 132 in the unlocked position, the rounded portion 266 engages the portion 256. The link 136 begins to pivot about the rivet 242 and the handle 132 moves counterclockwise. Continued movement of the handle 132 draws the portion 268 against the portion 256. The handle 132 is stopped by engagement of the lug 264 with the bracket 130 thereby locking the ventilator 30 securely in place.

The center of the rivet 236 (FIG. 3) is positioned at one side of a line 274 through the center points of the rivets 238 and 240. Any movement of the ventilator 30 from the closed position will tend to move the link 136 counterclockwise around rivet 242 by the portion 256 of the lug 250. The movement of link 136 also tends to move the handle 132 counterclockwise and the center of the rivet 236 further away from the line 274. The movement is prevented by the engagement of the handle lug 264 with the bracket 130 thereby preventing opening of the ventilator 30 from the exterior of the window 20. When unlocking the ventilator 30, the movement of the handle 132 in a clockwise direction moves the center of the rivet 236 across the line 274 thereby allowing the handle 132 to swing to the opened position illustrated in FIG. 5.

The window construction of the present invention allows the fixed panel 24 to be easily installed or removed from the frame 22 and prevents removal thereof from the exterior of the building with the ventilator 30 closed and locked when in the position illustrated in FIGURES 1 and 6.

It should be understood that the jamb members, head and sill members may be secured to the structure of the building wall in any suitable well known manner and may be assembled and interconnected at their corners in a well known manner so as to provide a rectangular frame opening which is true and squared. The frame structure of the fixed closure panel is similar to the sliding closure panel.

When the window is closed the sliding panel or ventilator 30 is in weathersealing relation to the frame 22. It is apparent that the fixed closure panel is provided with weatherseal means around its entire periphery and likewise the sliding closure panel 30 is provided with weatherseal means at the top and bottom rails and at the inner stile and jamb member when the sliding panel is closed as best illustrated in FIGURE 6. When the ventilator 30 is open, the weatherstrip 182 prevents insects and dirt from entering the interior of the building through the space provided between the screen panel 26 and rib 162 and the vertical space provided between the screen panel 26 and the top of the detachable sill 150. The operator 28 which extends into the interior of the building from the sliding closure panel is always in sealing engagement with the weatherstrip 182 whereby insects and dirt are prevented from entering the building.

The drawings and the foregoing specification constitute a description of the improved under screen window operator in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What we claim as our invention is:

1. A closure construction comprising a head member, a sill member and spaced vertical jamb members providing a frame, at least one sliding closure panel and one screen panel in the opening of said frame, said panels having vertical stiles, and top and bottom rails, the bottom surface of the bottom rail on said screen panel being vertically spaced above said sill member, a longitudinally extending upstanding rib on said sill member laterally spaced between said panels, resilient weatherstrip means interposed between the bottom rail of said screen panel and said rib to close the lateral space between said screen panel and said rib, and an operator operatively connected to said sliding closure panel and extending laterally therefrom across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said sill member, said operator terminating in a handle on the side of said screen panel remote from said sliding panel, said operator being movable longitudinally through the space between said screen panel and said sill member to open and close said sliding closure panel, said operator being in engagement with said weatherstrip means throughout the entire movement thereof.

2. A closure construction comprising a head member, a sill member and spaced vertical jamb members providing a frame, at least one sliding closure panel and one screen panel in the opening of said frame, said panels having vertical stiles, and top and bottom rails, the bottom surface of the bottom rail on said screen panel being vertically spaced above said sill member, a longitudinally extending upstanding rib on said sill member laterally spaced between said panels, resilient weatherstrip means interposed between the bottom rail of said screen panel

and said rib to close the lateral space between said screen panel and said rib, and an operator operatively connected to said sliding closure panel and extending laterally therefrom across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said sill member, said operator terminating in a handle on the side of said screen panel remote from said sliding panel, said operator being movable longitudinally through the space between said screen panel and said sill member to open and close said sliding closure panel, said operator being in engagement with said weatherstrip means throughout the entire movement thereof, and means operatively connected to said operator engageable with said sill member for locking the sliding closure panel when in a closed position in said frame.

3. A closure construction comprising a head member, a sill member and spaced vertical jamb members providing a frame adapted to be installed in the opening of a building structure, at least one fixed closure panel and one sliding closure panel and one screen panel in the opening of said frame, said panels having jamb stiles, inner stiles and top and bottom rails, said head and jamb members having three transversely spaced continuous recesses therein for receiving respectively the top rails and jamb stiles of said panels, said sliding closure panel being located in the recess adjacent the exterior of the building structure, said screen panel being located in the recess adjacent the interior of the building structure, the bottom surface of the bottom rail on said screen panel being spaced vertically above said sill member, a longitudinally extending upstanding rib on said sill member between and laterally spaced from said screen panel and said sliding closure panel, resilient weatherstrip means interposed between the bottom rail of said screen panel and said rib to close the lateral space between said screen panel and said rib to prevent the entrance of foreign matter into the interior of the building structure, and an operator operatively connected to said sliding closure panel and extending laterally therefrom towards the interior of the building structure across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said sill member, said operator terminating in a handle located on the interior of the building structure, said operator being movable longitudinally through the space between said screen panel and said sill member to open and close said sliding closure panel, said weatherstrip means being in sealing engagement with said operator at all times.

4. A closure construction comprising a head member, a sill member and spaced vertical jamb members providing a frame adapted to be installed in the opening of a building structure, at least one fixed closure panel and one sliding closure panel and one screen panel in the opening of said frame, said panels having jamb stiles, inner stiles and top and bottom rails, said head and jamb members having three transversely spaced continuous recesses therein for receiving respectively the top rails and jamb siles of said panels, said sliding closure panel being located in the recess adjacent the exterior of the building structure, said screen panel being located in the recess adjacent the interior of the building structure, the bottom surface of the bottom rail on said screen panel being spaced vertically above said sill member, a longitudinally extending upstanding rib on said sill member between and laterally spaced from said screen panel and said sliding closure panel, resilient weatherstrip means interposed between the bottom rail of said screen panel and said rib to close the lateral space between said screen panel and said rib to prevent the entrance of foreign matter into the interior of the building structure, and an operator operatively connected to said sliding closure panel and extending laterally therefrom towards the interior of the building structure across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said sill member, said operator terminating in a handle located on the interior of the building structure, said operator being movable longitudinally through the space between said screen panel and said sill member to open and close said sliding closure panel, said weatherstrip means being in sealing engagement with said operator at all times, and means operatively connected to said operator engageable with said sill member for locking the sliding closure panel when in a closed position in said frame.

5. A window frame structure having spaced vertical members, horizontal head and sill members providing an opening for a fixed closure panel, a ventilator movable horizontally in the frame exterior of the fixed panel, a screen panel in the frame interior of the fixed panel, the screen panel having a horizontal sill member spaced above the frame sill member, a horizontally extending rib projecting above the frame sill and spaced away from the screen sill toward the ventilator, a weatherstrip having pile extending between the screen sill and the rib, and an operator attached to the ventilator having a portion extending between the frame sill and the screen sill and a portion extending through the weatherstrip pile.

6. A window frame structure having spaced vertical members, horizontal head and sill members providing an opening for a fixed closure panel, a ventilator movable horizontally in the frame exterior of the fixed panel, a screen panel in the frame interior of the fixed panel, a horizontally extending detachable sill member on the frame sill, the screen panel having a sill member spaced above the detachable sill, a horizontally extending rib on the detachable sill spaced from the screen toward the ventilator, a weatherstrip having pile extending between the rib and the screen sill, and an operator attached to the ventilator having a portion extending between the screen sill and the detachable sill and a portion extending through the pile.

7. An operator for a ventilator which is movable horizontally in a window frame opening, the window frame having a horizontal sill member, the operator having a bracket portion and a handle portion, the bracket portion being attached to and extending inwardly from the ventilator adjacent to the frame sill, a lug extending from the frame sill adjacent the bracket, the handle being pivotally attached to the bracket by a pair of links, the pivot point of a first one of the links on the handle moving across a center line between the pivot point of the second one of the links on the handle and the pivot point of the first one of the links on the bracket when the handle is pivoted to a closed position, the second one of the links having an extending portion engaging the lug to hold the ventilator in locked position.

8. A window comprising a head member, a sill member and spaced vertical jamb members providing a frame adapted to be installed in the opening of a building structure, at least one fixed closure panel and one sliding closure panel and one fixed screen panel in the opening of said frame, said panels having jamb stiles, inner stiles and top and bottom rails, said head and jamb members having three transversely spaced continuous recesses therein for receiving respectively the top rails and jamb stiles of said panels, said sliding closure panel being located in the recess adjacent the exterior of the building structure, said screen panel being located in the recess adjacent the interior of the building structure, a detachable sill on said sill member between said fixed closure panel and the opposite jamb member to hold said fixed panel against movement, the bottom surface of the bottom rail on said fixed screen panel being spaced vertically above said detachable sill, a longitudinally extending upstanding rib

on said detachable sill between and laterally spaced from said screen panel and said sliding closure panel, resilient weatherstrip means interposed between the bottom rail of said screen panel and said rib to close the lateral space between said screen panel and said rib to prevent the entrance of foreign matter into the interior of the building structure, and an operator operatively connected to said sliding closure panel and extending laterally therefrom towards the interior of the building structure across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said detachable sill, said operator terminating in a handle located on the interior of the building structure, said operator being movable longitudinally through the space between said screen panel and said detachable sill to open and close said sliding closure panel, said weatherstrip means being in sealing engagement with said operator at all times.

9. A window comprising a head member, a sill member and spaced vertical jamb members providing a frame adapted to be installed in the opening of a building structure, at least one fixed closure panel and one sliding closure panel and one fixed screen panel in the opening of said frame, said panels having jamb stiles, inner stiles and top and bottom rails, said head and jamb members having three transversely spaced continuous recesses therein for receiving respectively the top rails and jamb stiles of said panels, said sliding closure panel being located in the recess adjacent the exterior of the building structure, said screen panel being located in the recess adjacent the interior of the building structure, a detachable sill on said sill member between said fixed closure panel and the opposite jamb member to hold said fixed panel against movement, the bottom surface of the bottom rail on said fixed screen panel being spaced vertically above said detachable sill, a longitudinally extending upstanding rib on said detachable sill between and laterally spaced from said screen panel and said sliding closure panel, resilient weatherstrip means interposed between the bottom rail of said screen panel and said rib to close the lateral space between said screen panel and said rib to prevent the entrance of foreign matter into the interior of the building structure, and an operator operatively connected to said sliding closure panel and extending laterally therefrom towards the interior of the building structure across the top of said rib and through the lateral space between said rib and said screen panel to engage and compress the weatherstrip means in contact therewith and through the vertical space between said screen panel and said detachable sill, said operator terminating in a handle located on the interior of the building structure, said operator being movable longitudinally through the space between said screen panel and said detachable sill to open and close said sliding closure panel, said weatherstrip means being in sealing engagement with said operator at all times, and latching means operatively connected to said operator engageable with said detachable sill for locking the sliding closure panel when in a closed position in said frame.

10. The window defined in claim 9 wherein said detachable sill has a pair of depending walls and means including longitudinally extending laterally spaced ribs carried by said sill member in cooperable engagement with said walls for aligning and positioning said fixed closure panel and said detachable sill.

11. The window defined in claim 10 wherein said resilient weatherstrip means is carried by the bottom rail of said screen panel throughout the entire length thereof.

12. The window defined in claim 11 wherein said operator and said latching means include a bracket and a handle, said bracket being connected to and extending inwardly from said sliding closure panel, a lug on said detachable sill adjacent said bracket, a pair of links interposed between said handle and said bracket, each of said links being pivotally connected to said handle and to said bracket, the first pivot connection of one of said links on said handle being moved across a center line between the first pivot connection of the other of said links on said handle and the second pivot connection of said one link on said bracket when said handle is rotated towards a closed position, said other link including means for engaging said lug when said sliding closure panel is in a closed position.

References Cited by the Examiner

UNITED STATES PATENTS

405,669	6/1889	Hutchinson	160—103
1,150,175	8/1915	Clermont	160—103
2,870,882	1/1959	Tolman.	
2,913,046	11/1959	Sharp et al.	160—91
2,970,642	2/1961	Parsons	160—91 X

REINALDO P. MACHADO, *Primary Examiner.*

HARRISON R. MOSELEY, *Examiner.*