# United States Patent [19]

**Petroff**

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[54] **LOCK FOR SLIDING DOORS AND WINDOWS**


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[52] **U.S. Cl.** ..... **292/291;** 292/258

[51] **Int. Cl.²** ..... **E05C 19/18**

[58] **Field of Search** ..... 292/291, 258, 288, DIG. 46



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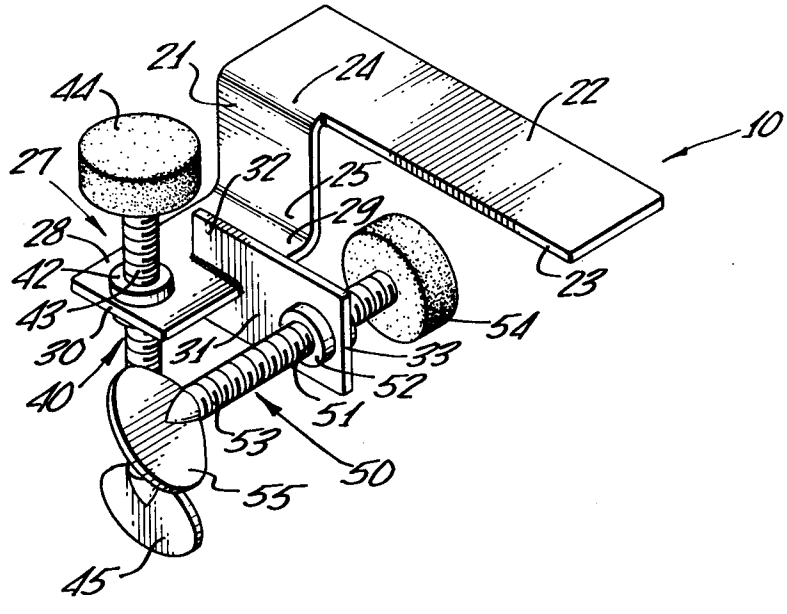
*Attorney, Agent, or Firm*—Philip M. Hinderstein



[57] **ABSTRACT**

A lock for sliding doors and windows which is positionable over the top rail of the door or window and includes first and second adjustable bolt members. Without requiring any connection to the rail of the door or window or the door or window frame, the first bolt member holds the door or window down against the lower channel of the frame and the second bolt member holds the door or window against the side of the upper channel of the frame, locking the door or window in any desired position.


**8 Claims, 3 Drawing Figures**



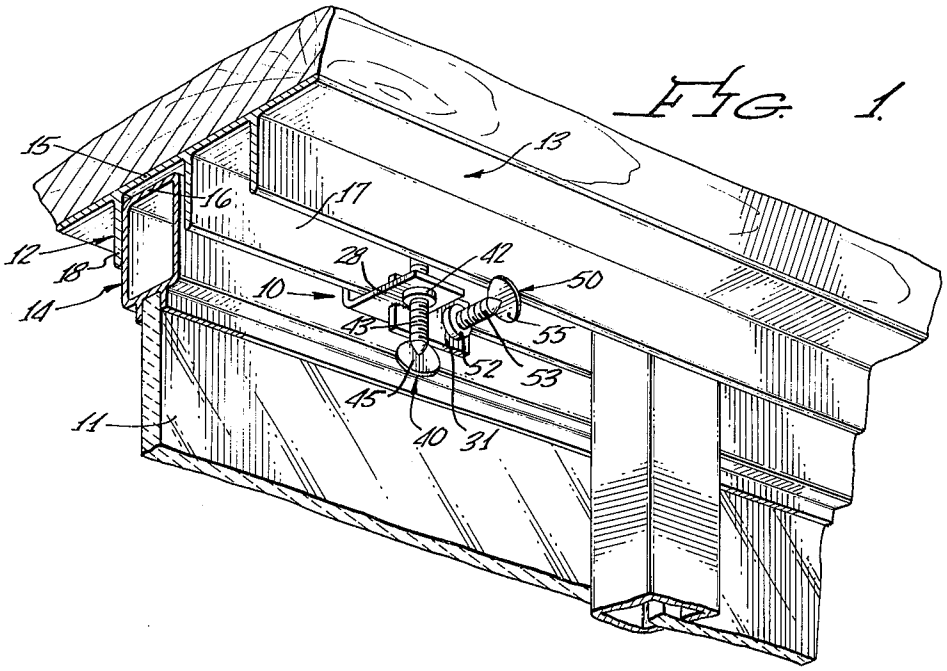



FIG. 1.

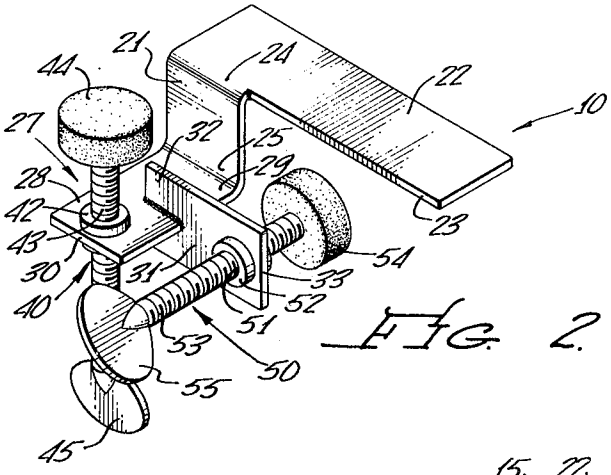



FIG. 2.

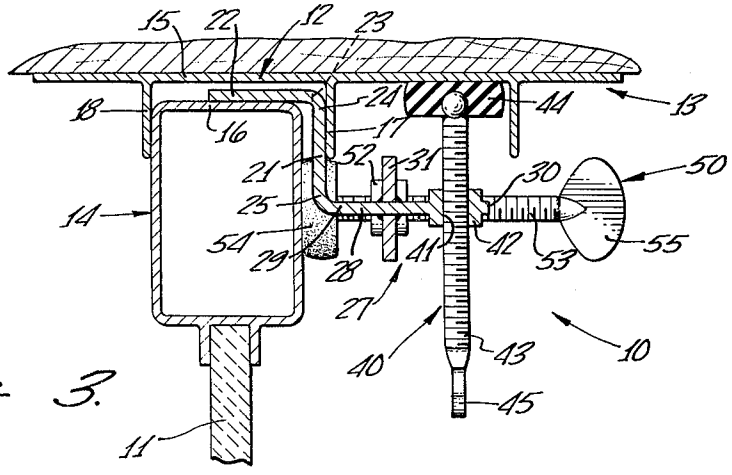



FIG. 3.

# LOCK FOR SLIDING DOORS AND WINDOWS

## BACKGROUND OF THE INVENTION

1. Field of the Invention.

The present invention relates to a lock for sliding doors and windows and, more particularly, to a removable mechanism for locking a sliding door or window in any desired position.

2. Description of the Prior Art.

Many homes and other buildings are provided with sliding doors and/or windows of the type which are slidably mounted in upper and lower U-shaped channels which are part of the door or window frame. Unfortunately, because of the ease with which these types of doors and windows may be removed from such frames, many homes provided with these types of doors and windows are often burglarized.

To prevent the unauthorized opening of such doors and windows, numerous types of locking elements have been devised. However, all suffer from at least one and usually more of several disadvantages. For example, most conventional locks must be physically attached to the door or window or door or window frame, such attachment often requiring the drilling of holes or the insertion of screws or bolts. As a result, the door or window or frame is permanently defaced preventing subsequent removal of the lock. Furthermore, while such a lock may be installed by a reasonably handy male, it is difficult, if not impossible, for it to be installed by many men and most women.

Regardless of the manner in which the lock mechanism is installed, most mechanisms permit the locking of a door or window in a limited number of positions. Thus, many of these mechanisms are wedged between the door or window frame and the slidable door or window so that the door or window cannot be slid open. However, such mechanisms often permit the window or door to be raised and there are occasions when it is desirable to lock the door or window in a somewhat open position. While other devices permit this, it is usually only after drilling of a limited number of holes in the door or window or frame.

## SUMMARY OF THE INVENTION

According to the present invention, there is provided a lock for sliding doors and windows which solves all of the problems discussed above. The present lock mechanism may be readily mounted over the top rail of any slidable door or window, without requiring any attachment thereto. Thus, the present lock may be installed by anyone, regardless of his or her mechanical ability. Furthermore, since no attachment is made to the door or window or frame, the present lock is quickly mountable and removable and does not deface the door or window.

The present lock mechanism is attachable to the sliding door or window itself and locks such door or window in any desired position without relying on a wedging action between the door or window and the door or window frame. Thus, the present lock may be used to keep a window closed or hold it firmly in any open position.

Briefly, the present lock is usable with doors or windows which are slidably mounted in upper and lower U-shaped channels which are part of the door or window frame and comprises: a vertical wall; a horizontal flange, one side edge of the flange being connected to the upper end of the vertical wall and extending perpendicular thereto; a support platform connected to the lower end of the vertical wall and extending generally perpendicular thereto, on the opposite side thereof as the horizontal flange, the lock being positionable over the top rail of the door or window with the horizontal flange positioned between the top of the rail and the top of the upper channel, with the vertical wall positioned between the inside of the rail and one side of the upper channel, and with the support platform extending normal to the inside of the rail of the door or window; a first adjustable bolt member extending through the support bar, perpendicular to the horizontal flange, the first bolt member being axially movable to bring one end thereof into contact with the inside of the door or window frame to urge the door or window downwardly against the lower channel; and a second adjustable bolt member extending through the support bar, perpendicular to the vertical wall, the second bolt member being axially movable to bring one end thereof into contact with the inside of the rail of the door or window to urge the door or window against the other side of the upper channel.



## OBJECTS

It is therefore an object of the present invention to provide a lock for sliding doors and windows.

It is a further object of the present invention to provide a lock for sliding doors and windows which may be easily and quickly mounted.

It is a still further object of the present invention to provide a lock for sliding doors and windows which does not deface the door or window.

It is another object of the present invention to provide a lock for sliding doors and windows which permits the door or window to be locked in any position and which prevents both the raising and the sliding of the door or window when locked.

It is still another object of the present invention to provide a lock for sliding doors and windows which may be readily detached.

Still other objects, features, and attendant advantages of the present invention will become apparent to those skilled in the art from a reading of the following detailed description of the preferred embodiment constructed in accordance therewith, taken in conjunction with the accompanying drawings wherein like numerals designate like parts in the several FIGS. and wherein:

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view showing the present lock in operative position relative to a conventional sliding door;

FIG. **2** is a perspective view of the lock of FIG. **1**; and

FIG. **3** is a sectional view taken along a vertical plane through the lock and door of FIG. **1**.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the present lock, generally designated **10**, will be described in its application to locking a sliding glass door **11** of the type including an upper U-shaped channel **12** and a similar lower U-shaped channel (not shown) which are part of a door frame **13**. However, it will be apparent to those skilled in the art that lock **10** is usable with a sliding glass window and with door or window frames having slightly different constructions. For present purposes,

door **11** includes a top rail **14** which slides through channel **12.** It should be noted that a space exists between the top **16** of rail **14** and the top **15** of channel **12,** which space permits window **11** to be elevated to remove the bottom rail (not shown) from the lower channel to permit removal from frame **13** of door **11.** It is this vertical movement of door **11** which is prevented by lock **10.**

Lock **10** includes a vertical wall **21** and an elongate, horizontal flange **22** extending perpendicular thereto, one side edge **23** of flange **22** being connected to the upper end **24** of wall **21.** The length of horizontal flange **22** is not critical although the width thereof must be less than the distance between the inside **17** and the outside **18** of channel **12** to permit its insertion therebetween, as shown in FIG. **3.** Thus, the width of flange **22** is slightly less than the width of top **16** of rail **14.** While the width of wall **21** is not critical, the height thereof is approximately equal to one-half the height of rail **14,** for reasons which will appear more fully hereinafter.

Upper end **24** of vertical wall **21** may be connected to side edge **23** at any point along the length thereof, although it is preferably connected adjacent one end of flange **22,** as shown. Furthermore, for ease of manufacture, vertical wall **21** is preferably made integral with horizontal flange **22.**

Lock **10** further includes a support platform, generally designated **27,** connected to the lower end **25** of wall **21.** More specifically, support platform **27** preferably includes a second, elongate, horizontal flange **28,** one end **29** of which is connected to lower end **25** of wall **21** and which extends perpendicular thereto. For convenience in manufacture, flange **28** is preferably made integral with wall **21** and thus has the same width thereas. The length of flange **28** is not critical.

Support platform **27** further includes a third, elongate, vertical flange **31,** one end **32** of which is connected to flange **28,** preferably by welding, at a point intermediate end **29** and the opposite end **30** thereof, flange **31** extending to one side of flange **28,** perpendicular thereto, and parallel to and spaced from vertical wall **21.** Neither the length nor the width of flange **31** is critical.

Support platform **27** supports first and second adjustable bolt members **40** and **50,** respectively, which extend through support platform **27,** perpendicular to flange **22** and wall **21,** respectively. More particularly, flange **28** has an internally threaded bore **41** extending perpendicularly therethrough, adjacent end **30** thereof, flange **28** further preferably having an integral collar **42** on opposite sides thereof, surrounding bore **41,** for strengthening purposes. In any event, bolt member **40** includes an elongate threaded shaft **43,** a pressure pad **44** connected to one end of shaft **43** and extending perpendicular thereto, and an integral gripping wing **45** connected to the other end of shaft **43** to permit the manual rotation thereof for axial movement of shaft **43** relative to flange **28.**

Similarly, flange **31** has an internally threaded bore **51** extending perpendicularly therethrough, adjacent the other end **33** thereof, flange **31** preferably including an integral collar **52** on opposite sides thereof, surrounding bore **51,** to strengthen same. Adjustable bolt member **50** is identical to adjustable bolt member **40** and includes an elongate threaded shaft **53,** a pressure pad **54** connected to one end of shaft **53** and extending perpendicular thereto, and an integral gripping wing **55** connected to the other end of shaft **53** to permit the manual rotation thereof for axial movement of shaft **53** relative to flange **31.** It will be noted from FIGS. **2** and **3** that pressure pad **44** may be positioned coplanar with flange **22** and that pressure pad **54** may be positioned coplanar with vertical wall **21.**

## OPERATION

It should be apparent to those skilled in the art that lock **10** is readily engagable with sliding door **11** as follows. First, adjustable bolt members **40** and **50** are retracted to bring pressure pads **44** and **54,** respectively, adjacent flanges **28** and **31,** respectively. In this position, and with door **11** open, lock **10** is insertable into frame **13.** More specifically, flange **22** may be positioned in contact with top **15** of channel **12** and wall **21** may be positioned in contact with inside **17** of channel **12.** In this position, door **11** may be closed whereby lock **10** is automatically positioned over top rail **14** of door **11** with flange **22** positioned and trapped between top **16** of rail **14** and top **15** of channel **12** and with vertical wall **21** positioned and trapped between the inside of rail **14** and side **17** of channel **12.** However, it should be noted that with bolt members **40** and **50** retracted, door **11** is clearly movable and lock **10** is also slidable along channel **12** to be positioned at any desired location.

When it is desired to lock door **11,** shaft **43** of bolt member **40** is rotatable and axially movable to bring pressure paid **44** into contact with the inside of frame **13** or any other horizontally positioned support surface. Continued rotation of shaft **43** in a direction to move pressure pad **44** away from flange **28** causes a downward movement of flange **28** and a corresponding downward movement of flange **22.** As a result, flange **22** contacts top **16** of rail **14,** urging door **11** downwardly into and against the lower channel. Thus, lock **10** effectively prevents the lifting of door **11** to effect its removal from the lower channel.

Shaft **53** of bolt member **50** is rotatable and axially movable to bring pressure pad **54** into contact with the inside of rail **14** of door **11.** It is to enable pressure pad **54** of bolt member **50** to contact approximately the center of the inside of rail **14** that the height of vertical wall **21** is approximately equal to one-half the height of rail **14.** In any event, continued rotation of shaft **53** in a direction to move pressure pad **54** away from flange **31** causes wall **21** to contact inside **17** of channel **12** and pressure pad **54** to contact the inside of rail **14.** As threaded shaft **53** moves axially, pad **54** urges rail **14** against outside **18** of channel **12,** creating a frictional engagement therebetween. It has been shown that adjustable bolt member **50** may be tightened to create a sufficient frictional force between rail **14** and side **18** of channel **12** to prevent the slidable movement of door **11.** As a result, lock **10** is effective in preventing either the vertical movement or the lateral movement of window **11,** completely locking same.

It can therefore be seen that in accordance with the present invention, there is provided a lock **10** for sliding doors and windows which solves all of the problems discussed hereinbefore. Lock mechanism **10** may be readily mounted over the top rail of any slidable door or window without requiring any attachment thereto. Thus, lock **10** may be installed by anyone regardless of his or her mechanical ability. Furthermore, since no attachment is made to the door or window or the door or window frame, lock **10** is quickly mountable and removable and does not deface the door or window.

Lock **10** is attachable to the sliding door or window itself and locks the door or window in any desired position so that it may be used to keep a window or door closed or hold it firmly in any open position. Thus, lock **10** is not only more convenient to use, but it is useful in a greater variety of circumstances than locks available heretofore.

While the invention has been described with respect to a preferred physical embodiment constructed in accordance therewith, it will be apparent to those skilled in the art that various modifications and improvements may be made without departing from the scope and spirit of the invention. Accordingly, it is to be understood that the invention is not to be limited by the specific illustrative embodiment, but only by the scope of the appended claims.

I claim:

**1.** A lock for sliding doors and windows comprising:

a wall;

a first flange, one edge of said first flange being connected to one end of said wall and extending perpendicular thereto;

a second flange, one edge of said second flange being connected to the other end of said wall and extending perpendicular thereto, on the opposite side thereof as said first flange;

a third flange being connected to said second flange, said third flange being positioned parallel to said wall and being spaced therefrom on the same side thereof as said second flange;

a first adjustable bolt member extending through said second flange, perpendicular thereto; and

a second adjustable bolt member extending through said third flange, perpendicular thereto.

**2.** A lock according to claim **1** for use with sliding doors and windows of the type which are slidably mounted in upper and lower U-shaped channels which are part of the door and window frames, respectively, said lock being positionable over the top rails of said doors and windows with said first flange positioned between the top of said rail and the top of said upper channel, with said wall positioned between the inside of said rail and one side of said upper channel, and with said second flange extending normal to said inside of said rail.

**3.** A lock according to claim **2** wherein said first bolt member is axially movable to bring one end thereof into contact with the inside of said door and window frames to urge said doors and windows downwardly against said lower channel.

**4.** A lock according to claim **3** wherein said second bolt member is axially movable to bring one end thereof into contact with said inside of said rail of said doors and windows to urge said doors and windows against the other side of said upper channel.

**5.** A lock according to claim **4** wherein said second and third flanges have first and second internally threaded bores, respectively, extending therethrough for receipt of said first and second bolt members, respectively, and wherein each of said bolt members comprises:

an elongate threaded shaft;

a pressure pad connected to one end of said shaft and extending perpendicular thereto; and

gripping means connected to the other end of said shaft for manually rotating same.

**6.** A lock according to claim **2** wherein said second bolt member is axially movable to bring one end thereof into contact with said inside of said rail of said doors and windows to urge said doors and windows against the other side of said upper channel.

**7.** A lock according to claim **1** wherein said second flange has an internally threaded bore therein which extends perpendicularly therethrough and wherein said first bolt member comprises:

a first elongate threaded shaft;

a first pressure pad connected to one end of said first shaft and extending parallel to and approximately coplanar with said first flange; and

first gripping means connected to the other end of said first shaft for manually rotating same.

**8.** A lock according to claim **7** wherein said third flange has an internally threaded bore therein extending perpendicularly therethrough and wherein said second bolt member comprises:

a second elongate threaded shaft;

a second pressure pad connected to one end of said second shaft and extending parallel to and approximately coplanar with said wall; and

second gripping means connected to the other end of said second shaft for manually rotating same.

* * * * *