Jan. 23, 1951 R. B. ANDERSON 2,538,825

WINDOW CONSTRUCTION

Filed Aug. 3, 1945 2 Sheets-Sheet 1

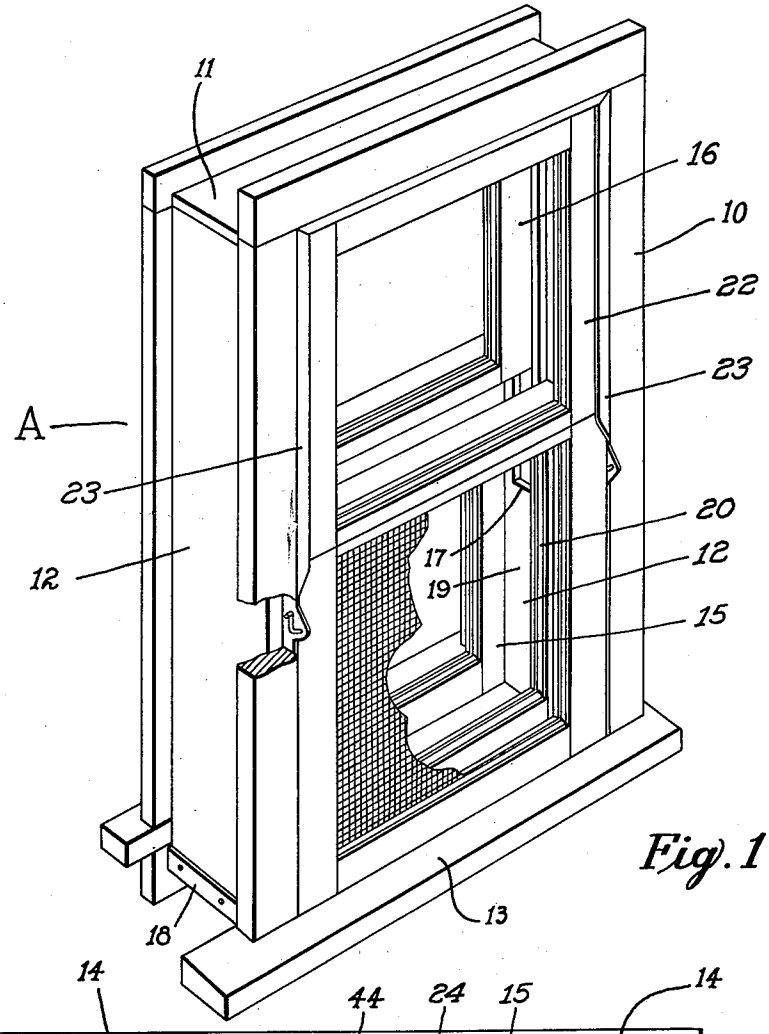

Fig. 1

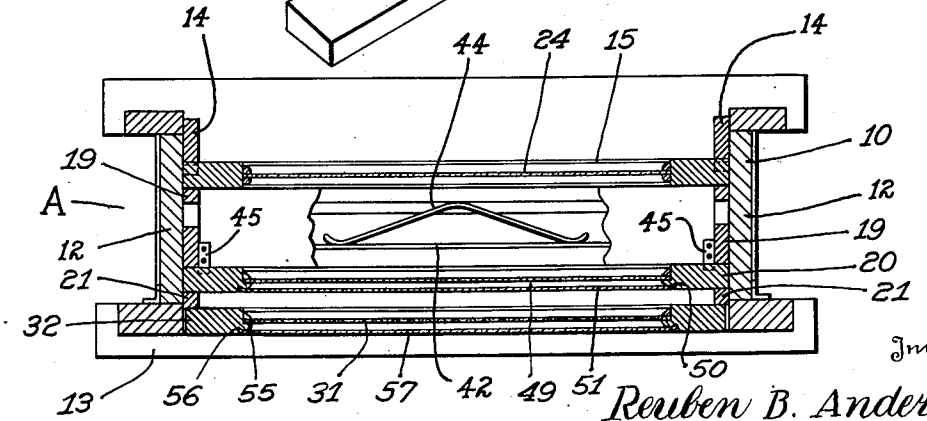

Fig. 2

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WINDOW CONSTRUCTION

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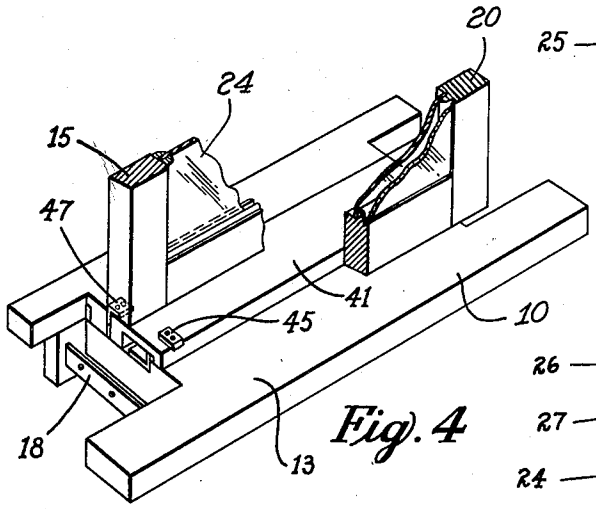

Fig. 4

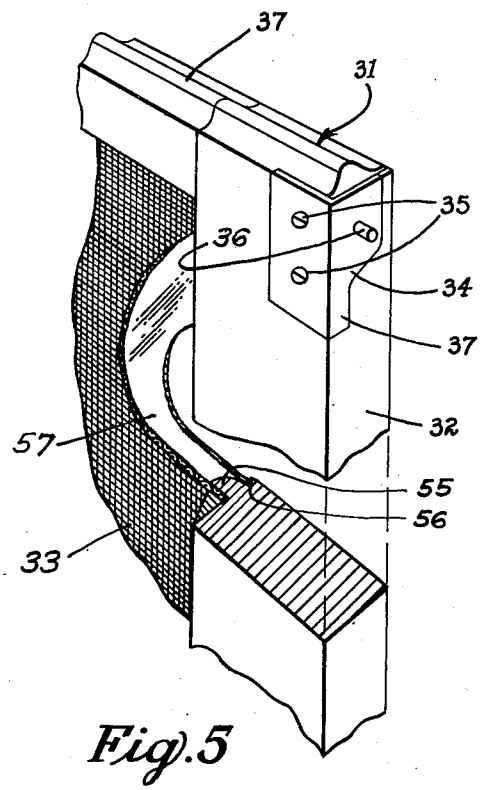

Fig. 5

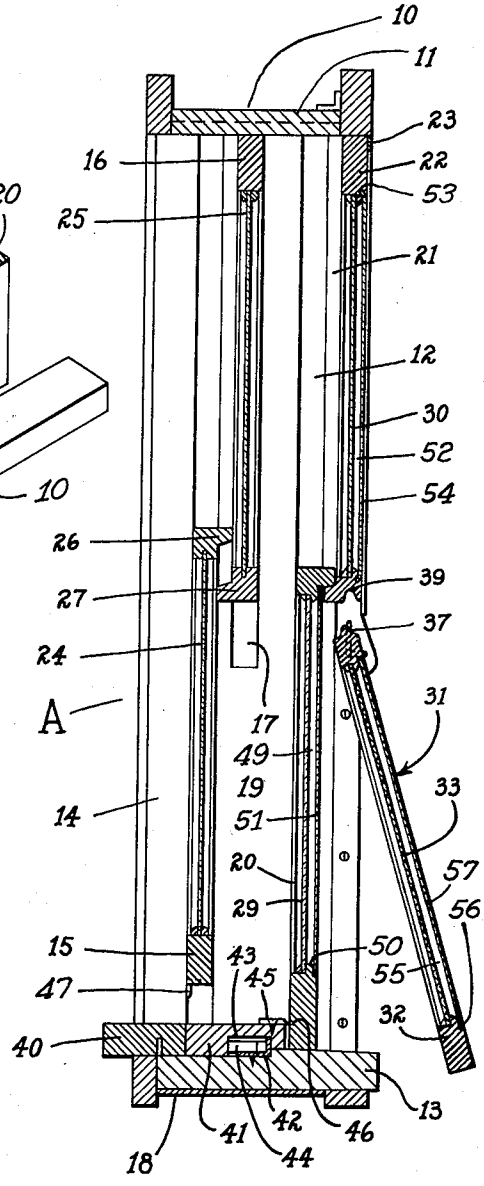

Fig. 3

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UNITED STATES PATENT OFFICE

2,538,825

WINDOW CONSTRUCTION

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7 Claims. (Cl. 160—90)

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My invention relates to an improvement in windows, wherein it is desired to provide a more effective window structure.

With most conventional types of double sash windows now in use, it is common practice to employ a window screen in the window frame during warm weather and in cold climates to replace this screen with a storm window during cold weather. This necessitates changing screens and storm windows twice each year and provides ineffective insulation when it is desired to prevent heat from entering the house. Some persons follow the practice of completely closing their house during the hottest hours of the day. Opening the windows to cool the house during the cool hours requires the presence of a screen in the window in most territories. Therefore in the warmer hours a single double sash window insulates the warm air outdoors from the cooler air inside the building.

It is the object of the present invention to provide a window having two sets of double hung window sashes therein and having a screen interposed between one window sash and the opposite end of the frame. The outermost windows act in the capacity of storm windows, thus obviating the necessity of adding storm windows in cold weather. At the same time, however, both of the windows may be closed at any time of the year to provide an effective insulation in hot or cold weather. The window may likewise be opened in the usual manner, and the opening protected by a screen.

A feature of the present invention lies in the provision of a wide flush sill extending inwardly from the inner window in the usual manner, and extending outwardly into proximity with the outer window. A wide flat shelf or table is thus formed when the lower sash of the inner window is raised. An added advantage of the sill construction lies in the fact that the sill itself can be removed from the outside of the window and replaced.

A further feature of the present invention lies in the fact that the screen may be opened if desired to permit the window opening to be unobstructed. When both of the lower window sashes are in raised position, a person inside the window has access to the window screen. The screen may then be swung outwardly and entirely removed if necessary.

A feature of the present invention resides in the provision of a window locking apparatus which prevents the window from being opened from the outside. This locking apparatus is operated automatically upon the lowering of the lower portion of the inner window sash, thus obviating the necessity of locking the window.

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A further feature of the present invention lies in the fact that the window sill is provided with a movable member which may be moved into engagement with the outer window sash. This movable member is actuated by the closing of the lower sash of the inner window, thus preventing a draft through the window due to a crack or space between the window sash and the sill.

A further feature of the present invention resides in the fact that the sash may, if desired, contain a plurality of panes of transparent material, thus increasing the insulating effect. If it is so desired, a sheet of somewhat flexible glass or plastic may be inserted in a groove extending about the window pane opening of each sash, thus providing a double window effect. In such a construction, the frame is provided with a fixed integral shoulder externally of the window pane in which the groove for the extra pane is provided.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a perspective view of a window frame embodying the construction of my invention.

Figure 2 is a transverse sectional view through the window shown in Figure 1, a portion of the sill being broken away to show the construction of the movable sill member.

Figure 3 is a vertical section through the frame and sash illustrating the construction thereof.

Figure 4 is a perspective view of the sill showing the construction thereof.

Figure 5 is a perspective view of a portion of the screen showing the manner in which the same is supported.

The window A includes a window frame 10 which is generally similar to that customarily employed. The frame 10 includes a head jamb 11, side jambs 12, and a sill 13. A window stop 14 extends vertically along each of the jambs 12 to provide a guide for the movement of the lower sash 15 of the inner window. The upper sash 16 of the inner window is guided in its movement by a groove 17 in the parting stop 19 between the inner and outer windows. The groove 17 extends only a portion of the entire height of the window, allowing the window to open for ventilation purposes, but providing an opening too small for a person to climb through.

A guide for vertical sliding movement of the lower sash 20 of the outer window is provided by the parting stop 19 and the parting stop 21. The upper sash 22 of the outer window is held in place by a right angular guide strip 23 which extends across the top of the frame beneath the level of the head jamb 11 and extends to the bottom of the upper sash 22 in raised position of this sash.

By removing the window stops and parting stops 14, 19 and 21 and the guide strip 23, the sill may be removed from the exterior of the window for repair or replacement. The sill 13 is slidably supported between the side jambs 12 and between the inner sill stop and the bottom plate 18 secured to the lower ends of the side jambs 12.

The inner window sashes 15 and 16 are in general similar to those usually found in a double hung sash window. Each of these sashes in preferred form comprises a rectangular open framework in which is mounted the usual window pane. The window pane 24 is provided in the lower sash 15 and the window pane 25 is provided in the upper window sash 16. These two sashes are provided with complementary abutments 26 and 27 which provide a seal between these windows. The outer sashes 20 and 22 are likewise provided with window panes 29 and 30, respectively, which are mounted therein in the usual manner. The lower sash 20 may raise into engagement with the head jamb 11 to provide a full opening for the lower portion of the window if it is so desired. The upper sash 22 is free to lower throughout the entire range of movement within the window frame, but is not guided effectively as it approaches its lowermost position.

The screen 31 comprises a rectangular sash 32 in which is mounted wire, screen, or fabric 33. A stile plate 34 is secured by screws 35 or other detachable means to the inner surface of the screen extending over the marginal edge of the screen and flush therewith. A pin 36 projects from the flange 37 of the stile plate overlying the marginal edge of the screen sash. This pin 36 forms a pivot pin about which the window may be swung in opening the window.

Similar stile plate may likewise be provided on the opposite side of the screen 31, if it is so desired. Alternatively, one of the stile plates may comprise merely a flat plate having a pin projecting therefrom, as one of the stile plates may be secured to the marginal edge of the screen rather than to extend over a portion of the inner surface thereof. It is desirable, however, to have at least one of the stile plates of the form illustrated in order to simplify the removal of the screen when it is desired.

A rib or tongue 37 projects upwardly from the upper edge of the upper edge of the screen frame 32 and fits into a similarly shaped notch 39 in the lower edge of the upper sash 22 of the outer window. This tongue and groove connection between the screen and the window provides a tight joint between these elements.

Mounted upon the sill 13 I provide a fixed stop 40. A slidable sill member 41 is slidably mounted on the sill 13 externally of the stop 40. This movable sill portion 41 may move toward or away from the lower sash 20 of the outer window. When in outermost position the sill portion 41 engages tightly against the inner surface of the sash 20, forming a tight joint at this point.

The sill portion 41 is slidably supported between the lower extremities of the parting stops 19 and the sill 13. Thus the sill may move outwardly or inwardly in a horizontal direction but may not move in any other direction. An angle member 42 is secured to the sill 13 by any suitable means. A groove 43 is provided in the undersurface of the sill portion 41 extending longitudinally of the sill portion 41 and transversely of the window frame. A spring 44, formed of flat metal or the like, is interposed between the angle member 42 and the inner side of the groove 43, thus urging the sill portion 41 inwardly against the sill stop 40. A pair of locking plates 45 are mounted upon the sill portion 41 and are engageable into notches 46 formed in the inner surface of the lower sash 20 of the outer window.

L-shaped brackets 47 are secured to the undersurface of the lower sash 15 of the inner window and are designed to extend between the sill portion 41 and the sill stop 40. The engagement of the angle members 47 against the sill portions 41 acts to move the sill portion 41 outwardly. This outward movement of the sill portion 41 causes this sill portion to engage firmly against the inner surface of the lower sash of the outer window and causes the locking plates 45 to engage in their notches 46. As a result when the inner window is in lowered position the lower sash 20 of the outer window can not be raised.

It will be noted that an automatic window lock is thus provided. The upper sash 16 of the inner window can only be lowered a limited amount which will not permit the entry of a person between the upper sash and the window frame. At the same time when the lower sash 15 is in lower position the sill portion 41 is urged against the outer window engaging the locking plates 45 in their notches and preventing the outer window sash 20 from being raised. Thus the window is locked against a person entering either through the top portion or the lower portion thereof.

The double window construction described has all the advantages of the present construction, with few or none of the accompanying disadvantages. The double window may be used to provide insulation either in hot or cold weather, but at the same time, by opening both lower sashes, or partially opening both upper sashes, the necessary circulation of air may be effected. The screen may be removed and replaced when desired, but ordinarily may be left in its proper position throughout the year.

In the event further protection is desired, auxiliary panes may be added to some or all of the window and screen frames. It will be noted that the sash 20 is provided with an integral shoulder 49 externally of the pane 29. The pane is held in place by putty and glazier's points in the usual manner, but the seal is inwardly of the pane instead of outwardly therefrom.

A groove 50 is provided in the sash frame 20 externally of the pane 29. A transparent pane 51 of plastic or the like, such as Lucite or other clear transparent plastic, may be inserted in the groove 50. This additional pane may be removably supported in place if desired.

The sash 22 is also constructed with an integral shoulder 52 externally of the pane 30 therein. A groove 53 is provided in the sash 22 externally of the pane 30 to accommodate a plastic auxiliary pane 54 similar to the pane 51 previously described.

The screen frame 32 may be similarly arranged. A shoulder 55 is provided integral with the frame and externally of the screen. A groove 56 is provided on the frame externally of the screen, and a plastic pane 57 may be removably inserted in

the groove. The panes 51, 54, and 57 provide additional protection should such be needed.

In accordance with the patent statutes, I have described the principles of construction and operation of my window, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A window comprising a window frame, inner and outer windows in said frame, said inner window including vertically slidable sashes, a movable sill member slidably supported by the frame and movable toward and away from said outer window, and means on the lower sash of the inner window engageable with said sill member to move the same aaginst the inner surface of said outer window.

2. A window comprising a window frame, an inner window in said frame including upper and lower slidable sashes, an outer window in said frame, a slidable sill member slidably supported by the frame and movable toward and away from said outer window, spring means urging said sill member normally away from said outer window, and means on the lower sash of said inner window engageable with said sill member to urge the same against said outer window.

3. A window comprising a window frame having an inner pair of vertically slidable sashes, an outer pair of vertically slidable sashes, and a means actuated by slidable movement of one of the inner sashes to lock one of the outer sashes from movement.

4. A window comprising a window frame, an inner window comprising upper and lower slidable sashes in said frame, an outer window comprising upper and lower slidable sashes, a sill stop extending inwardly from the inner edge of the lower sash of the inner window, sill member movably mounted on said frame for movement toward and away from said sill stop and into and out of engagement with said lower sash of the outer window in lowered position of this sash, said sill member extending flush with said sill stop and cooperable means on said movable sill member and said lower sash of said inner window engageable as the lower sash of the inner window is lowered for moving said movable sill away from said sill stop.

5. A window comprising a frame, an inner vertically slidable sash mounted in said frame, an outer vertically slidable sash mounted in said frame, a sill movably supported by said frame for movement between two extreme positions, locking means on said sill and cooperable means on said outer sash engageable with said locking means in one extreme position of said sill, and means on the inner sash engageable with said sill as the inner sash is lowered to move the sill into said one extreme position.

6. The structure defined in claim 5 and including resilient means for urging said sill toward its other extreme position.

7. The structure defined in claim 5 and in which the sill seals against the outer sash in said one extreme position.

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