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2,581,666

PARALLEL PANES

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FIG. 2

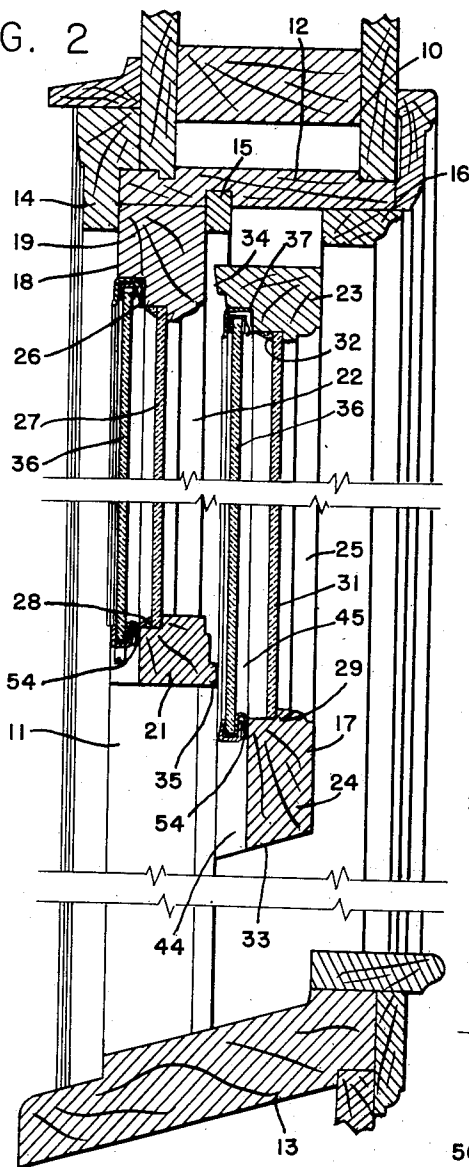
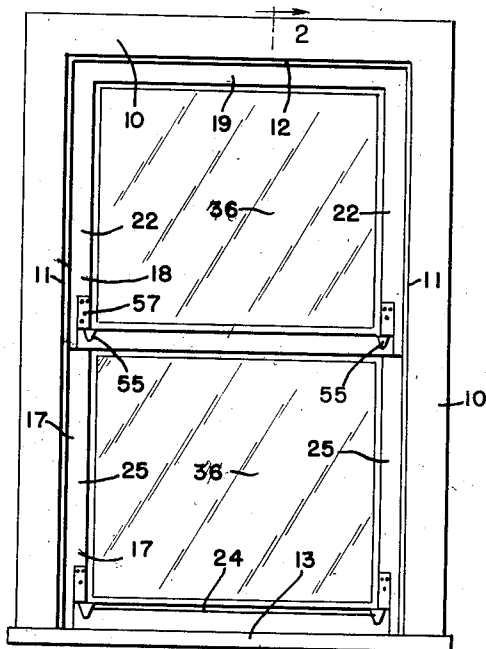


FIG. 1

FIG. 3

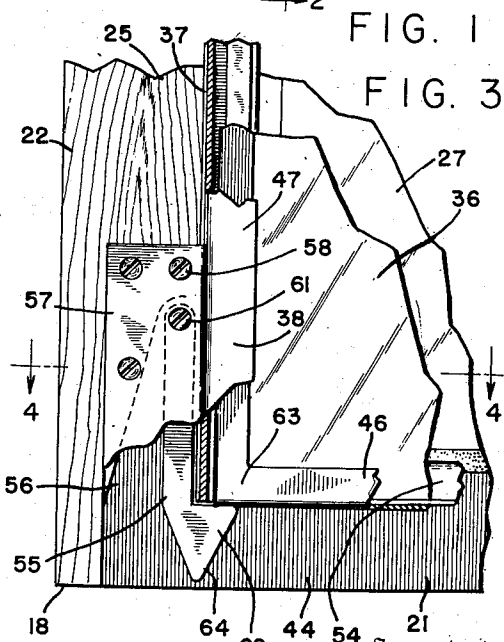
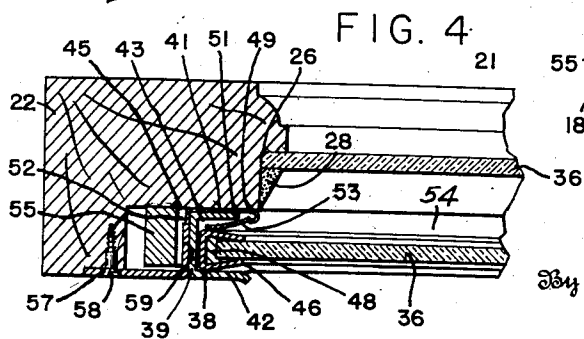


FIG. 4



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PARALLEL PANES

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My invention relates to windows and has for an object to provide a construction whereby the ordinary storm sash now employed may be dispensed with.

Another object of the invention resides in providing the window sash with a fixed pane and a movable pane arranged in conjunction with the fixed pane to form an insulating space therebetween.

An object of the invention resides in providing a construction whereby the movable pane may be readily removed from the window from within the interior of the building in which the window is installed.

Another object of the invention resides in providing a construction whereby the movable pane is of smaller dimensions than the opening through the window so that the same can be directly moved into the interior of the building without holding the pane on the skew or in an awkward position.

Another object of the invention resides in providing a window construction in which the movable pane may be removed from the sash from below.

A feature of the invention resides in providing locking means for locking the movable pane in operative position.

Another object of the invention resides in utilizing two hooks pivoted to the sash and adapted to be swung beneath the movable pane to hold the same in position.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is an elevational view of a window illustrating an embodiment of my invention applied thereto.

Fig. 2 is a longitudinal sectional view taken on line 2—2 of Fig. 1 and drawn to a greater scale.

Fig. 3 is an elevational view of a portion of the structure shown in Fig. 1 with parts of the device removed to illustrate the operation of the invention.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

In the use of storm sash and other movable structures for reducing the transfer of heat through a window, considerable difficulty and inconvenience is encountered in the removal of said sash when the occasion demands. Heretofore, clumsy and bulky construction has been pro-

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vided which, when the windows were on a second story, required the use of ladders and other apparatus to permit of removal of the storm sash or other structures from the window and from without the building. The instant invention provides a construction whereby a movable pane of glass is employed to take the place of the usual storm sash, which pane is arranged so that the same may be readily removed from the sash from within the interior of the building. Where double glazed sash and similar construction has been employed for the desired purpose, frosting of the outermost pane frequently occurs. The instant invention further provides a construction whereby this disadvantage is entirely prevented.

For the purpose of illustrating the invention, I have shown in the drawings, an ordinary window frame 10 which is constructed with vertical frame members 11, an upper horizontal frame member 12 and a window sill 13. This construction is provided with stops 14, 15 and 16, in which a lower window sash 17 and an upper window sash 18 are slidably mounted for vertical movement. The sash 18 consists of an upper rail 19, a lower rail 21 and stiles 22. The sash 17 consists of an upper rail 23, a lower rail 24 and stiles 25. Mounted in a rabbet 26 in the stiles 22 and in the rails 19 and 21 of the upper sash 18 is a fixed pane 27 of glass which is held in position in said sash in the usual manner by means of putty indicated at 28. The sash 17 also has a rabbet 29 formed in the same in which is received a fixed pane of glass 31 which is likewise held in position within said sash by means of putty 32. The lower rail 24 of the sash 17 is beveled as designated at 33 to fit the window sill 13, while the rails 23 and 21 are formed with meeting strips 34 and 35, which close the space between the two sash when said sash are in closed position.

For the purpose of the invention, each of the sash 17 and 18 is provided with a movable pane 36. Since each of these panes are of the same construction and the method of supporting these panes with reference to each of the sash is the same, only the pane 36 associated with the sash 17 will be described in detail. Formed in the outer surface at the inner corners of each of the stiles 25 and in the upper rail 23 of the sash 17 are rabbets 37 which together extend completely around the sash. Within these rabbets is received channel members 38 which are constructed with a back 39 and flanges 41 and 42 projecting outwardly therefrom. This construction provides a groove 43 extending along the said chan-

nel members and in which the pane 36 may be inserted. The lower rail 24 of sash 17 is cut down in thickness so that the outer surface 44 thereof lies level with the bottom 45 of the rabbet 37.

The pane 36 is provided with a U-shaped edging 46 which extends completely about the same and which is attached to the said pane and protects the edge of the pane. Putty, indicated at 48, is inserted into the edging 46 and forms a tight seal between the edging and the pane. The edging 46 is adapted to be received in the groove 43 in the channel members 38.

For the purpose of forming a tight joint between the pane 36 and the sash 17, sealing strips 49 are employed. These sealing strips have backs 51 which lie against the bottom 45 of the rabbet 37 and are held in place by means of the channel members 38. Said sealing strips have a flange 52 which extends rearwardly thereof and engages the backs 39 of the channel members 38. The sealing strips 49 also have flaps 53 which extend inwardly into the groove 43 in the channel members 38 and which are adapted to engage the edging 46 of the pane 36. The sealing strips 49 are constructed of resilient material so that the edging 46 is urged against the flange 42 of the channel members 38. In this manner, a weather tight connection is formed between the pane 36 and the sash 17 at the locality of the channel members 38.

To form a tight connection between the pane 36 and the rail 24 of sash 17, a sealing strip 54 is employed which is attached to the pane 36. This sealing strip is received with the lowermost portion of the edging 46 of the pane 36 and is adapted to engage the rail 24 of sash 17. The said sealing strip is also constructed of resilient material and urges the pane 36 outwardly in the same manner as the sealing strips 49.

For the purpose of holding the pane 36 in operative position, two catches 55 are employed which are disposed, one on each side, of the said pane. These catches are disposed in recesses 56 formed in the stiles 22 of the sash 18. Overlying these recesses are plates 57 which are secured to the stiles 22 by means of screws 58. The said plates have flanges 59 formed on the same and which abut the backs 39 of the juxtaposed channel members 38. The catches 55 are pivoted to the said plates by means of screws 61 which extend through said plates and are screwed into the stiles 22. Each of the catches 55 has a hook 62 formed on the lower portion of the same which is adapted to extend under and to engage the lower portion 63 of edging 46 of the pane 36. These hooks have cam surfaces 64 formed at the facing edges of the same.

The manner of using the invention is as follows: To apply the pane to the sash, the upper portion of the pane is placed at the lower end of the sash when the same is in raised position and in a position to engage the cam surfaces 64 of the catches 55. Upward movement of the pane causes the catches 55 to swing outwardly and clear the pane allowing the same to be inserted into the grooves 43 of the channel members 42. When the pane enters these channel members, the pane is raised upwardly until the upper edge of the same becomes received within the channel members 38 in the rail 23. The lower edge of the pane 36 is in such position above the hooks 62. Catches 55 are now swung inwardly and the hooks 62 thereof brought under the portion 63 of the edging 46. The pane is now held in proper position relative to the sash 17. As will be noted in

the drawings, the channel members 38 are located inwardly of the stops 14, 15 and 16 so that the width of the pane 36 together with its edging 46 is less than the width of the sash opening through the window. This enables the operator, in handling the pane, to hold the same at the sides of the pane and guide the same into and out of the grooves in the channel members of the sash. Also, the height of the pane 36 is less than the height of the sash opening formed in the window when the sash are at their uppermost positions. This permits of inserting the panes into the sash and removing the pane therefrom from within the interior of the building. In the removal of the sash, the procedure is reversed. While I have shown the invention as used with a double-hung window, it can also be understood that the invention may be employed with casement sash and also with cellar sash.

The advantages of the invention are manifest. By means of my invention, the ordinary storm window may be dispensed with and the advantages of storm windows may be procured without the annoyance and disadvantage of the same. The removable panes are easily removed and replaced from within the interior of the building which permits of cleaning of both the removable panes and the fixed panes of the sash. Due to the fact that the fixed sash is upon the interior of the window, frosting of the same is entirely prevented. This is due to the fact that the air which enters the space between the sash would have to be outside air since the inner pane is puttied tight to the sash and leakage of the air past the same cannot occur. The outside air being dry, no condensation is introduced into this space and no frosting of the pane occurs.

Changes in the specific form of my invention, as herein described may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination, a sash mounted for movement in a window frame and including stiles and rails, a fixed pane of glass mounted therein upon the interior side of the sash, a movable pane of glass overlying said fixed pane and spaced therefrom said movable pane being disposed upon the exterior side of the sash, means forming grooves in said stiles and in the upper rail for receiving said movable pane and supporting the same for slidable movement, the grooves in said stiles being open at their lower end to accommodate removal of the movable pane from below the sash and in a direction parallel to the plane of said fixed pane and locking means for holding the movable pane in position within said grooves.

2. In combination, a sash mounted for movement in a window frame and including stiles and rails, a fixed pane of glass mounted therein, a movable pane of glass overlying said fixed pane and spaced therefrom, said stiles and the upper rail having a rabbet formed along the innermost edge thereof, channel members received within said rabbets and provided with spaced flanges and a back connected thereto and forming inwardly facing grooves for the reception of said movable pane, the grooves in the channels of said stiles being open at their lower ends to accommodate removal of the movable pane from below the sash in a downward direction and locking means for holding the movable pane in position within said channels.

3. In combination, a sash mounted for move-

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ment in a window frame and including stiles and rails, a fixed pane of glass mounted therein, a movable pane of glass overlying said fixed pane and spaced therefrom, said stiles and the upper rail having a rabbet formed along the outermost edge thereof, channel members received within said rabbets and provided with spaced flanges and a back connected thereto and forming facing grooves for the reception of said movable pane, the grooves in the channels of said stiles being open at their lower ends to accommodate removal of the movable pane from below the sash, said movable pane having a U-shaped edging extending along the edges thereof and received within said grooves, a metal strip having a body portion disposed between said channel and the sash and a flap extending inwardly into said groove and engaging said edging, said metal strip having a flange extending about said channel member to hold the same in position within said rabbet and locking means for holding the movable pane in position within said grooves.

4. In combination, a sash mounted for movement in a window frame and including stile and rail members, a fixed pane of glass mounted therein upon the interior side of the sash, a

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movable pane of glass overlying said fixed pane and spaced therefrom, said movable pane being disposed upon the exterior side of the sash, guide means in the sash providing grooves along three of said stile and rail members for supporting the movable pane for endwise movement in the plane thereof, said grooves at the ends of said fourth member being open to accommodate removal of the movable pane from the grooves, and locking means for holding the movable pane in position within said grooves.

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