Nov. 27, 1928.

1,693,551

F. X. GRASER

WINDOW CONSTRUCTION

Filed Feb. 7, 1928

2 Sheets-Sheet 1

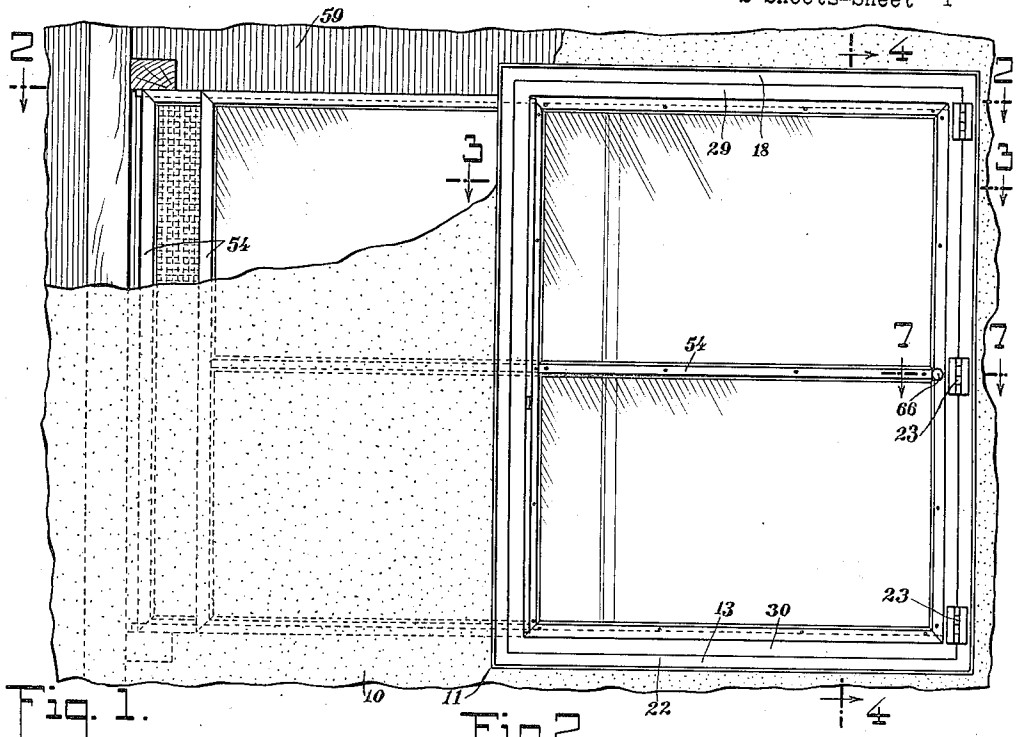


Fig. 1.

Fig. 2.

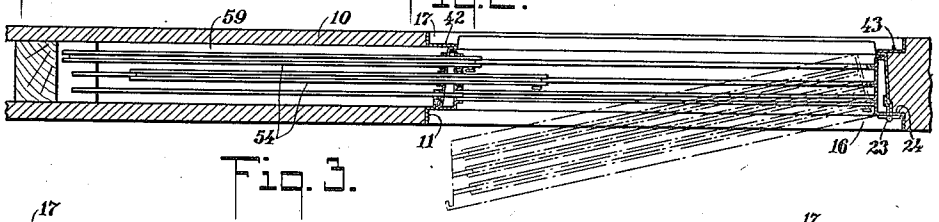
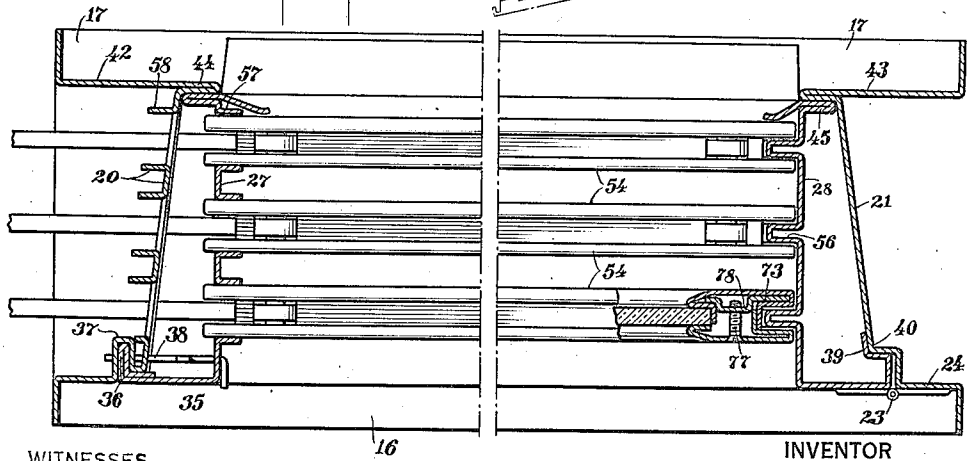


Fig. 3.



WITNESSES

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Fig. 4.

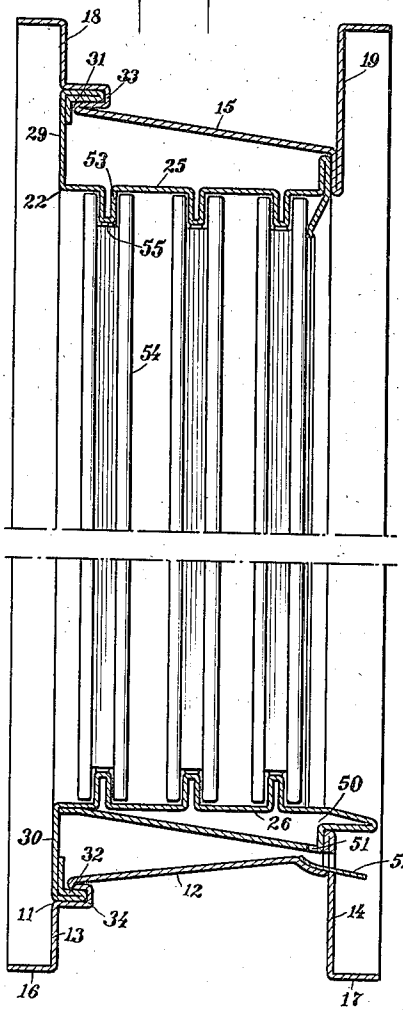


Fig. 5.

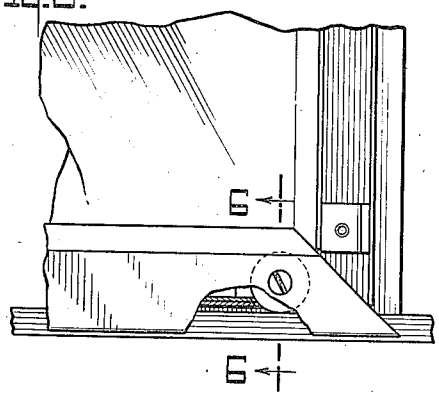


Fig. 6.

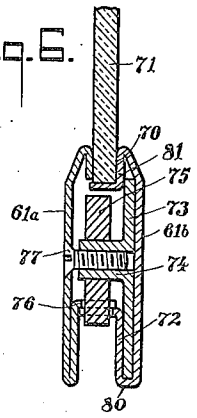


Fig. 7.

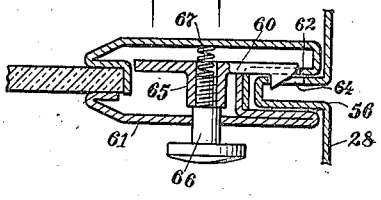
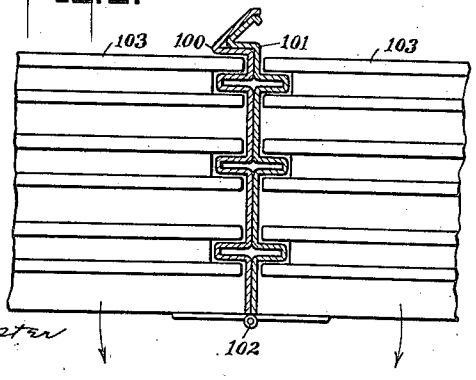


Fig. 8.



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UNITED STATES PATENT OFFICE.

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WINDOW CONSTRUCTION.

Application filed February 7, 1928. Serial No. 252,557.

The present invention is concerned with the provision of a unique window construction in which one or more sashes are arranged within a swinging frame member, so that the frame member carrying the sashes may be bodily swung open. The sashes are arranged on tracks so that they may be conveniently laterally slid into and out of the swinging frame to facilitate ready cleaning of the sashes.

The wall adjacent the window frame is recessed, so that the sashes may be slid laterally into the wall while the window frame is swung to, permitting full or partial opening of any of the sashes while the swinging frame and window frame are locked together.

In accordance with a preferred embodiment of the invention, I use three sashes, one of them serving as a screen, one of them as a storm window, and one of them as an inner window. By virtue of this arrangement, I provide a window well suited to all weather conditions inasmuch as the combination of storm sash and inner sash are highly effective in winter, and both of these sashes may be slid laterally into the wall in warm weather, leaving the window still protected by the screen.

Other and more general objects of the invention are to provide a window of simple, practical construction, which will be rugged, durable and efficient in use, and well suited to the requirements of economical manufacture.

With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter set forth and pointed out in the claims. The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein—

Fig. 1 is a view mainly in inside elevation, but partly in section showing one of my improved windows and an adjacent section of wall, with one of the sashes slid completely into the wall, one of the sashes occupying its normal position within the swinging frame, and one of the sashes partially moved to concealed position.

Fig. 2 is a sectional plan view on the line 2—2 of Fig. 1, the dotted lines indicating the position of the swinging frame when the latter is ajar.

Fig. 3 is an enlarged broken sectional plan view on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged broken vertical sectional view on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged elevational detail showing one corner of the inner sash with parts broken away and in section for clearness.

Fig. 6 is an enlarged sectional detail on the line 6—6 of Fig. 5.

Fig. 7 is a similar view on the line 7—7 of Fig 1.

Fig. 8 is a fragmentary sectional plan view illustrating a modified form of the invention.

In the drawings I have used the reference numerals 10 to designate a wall having a window opening therein, receiving a stationary window frame or casement designated generally at 11. Frame 11 is preferably of sheet metal construction, and as best seen from Figs. 3 and 4 includes a bottom 12 provided with inner and outer flanges 13 and 14 which are turned over to define sills 16 and 17. The top 15 of the frame 11 is also provided with flanges 18 and 19 at its inner and outer edge. From its inner to its outer edge, the top 15 of the frame 11 inclines downwardly. The bottom 12 of the frame on the other hand, inclines upwardly while the two vertical side frame sections 20, 21 converge toward their outer edges.

The swinging frame indicated generally at 22 is hingedly connected as at 23 to the outwardly flanged inner portion 24 of the side frame section 21. The swinging frame includes substantially horizontally disposed top and bottom portions 25, 26 and parallel side portions 27 and 28. A double peripheral engagement of the stationary and swinging frames is had when the latter frame is in the closed position of Figs. 3 and 4. In the first place, the top and bottom portions 25 and 26 of the swinging frame are provided with oppositely extending flanges 29 and 30 bent upon themselves to define forwardly extended tongues 31 and 32 received in offset or grooved portions 33 and 34 of the top 15

and bottom 12 of the outer stationary frame. The side 27 of the swinging frame likewise carries a laterally extended flange 35 at its inner edge provided with a turned over rail 36 received in a suitable offset or groove 37 of the side member 20, and adapted to be latched therein by the use of any suitable latching bolt 38.

Adjacent its hinged edge, the swinging frame 28 is provided with a stepped flange portion 39 adapted when the swinging frame is closed to seat on a similarly stepped portion 40 of the side frame member 21.

The flanges 19 and 14 of the outer frame member and corresponding flanges 42 and 43 at the outer edges of the side frame members 20 and 21 include double and inwardly extended portions 44 cooperatively defining an inwardly facing shoulder against which the outer face of the swinging frame 22 is adapted to abut. This frame is provided with a doubled-over outwardly projected flange 45 extending around its entire outer edge which abuts the flange 44.

By virtue of this arrangement the swinging frame member 22 when closed, has two-point peripheral engagement with the stationary frame 11. That is to say, the outer flange 45 of the swinging frame is engaged throughout its length with the flange 44 of the stationary frame, while means is also provided for interengagement of the inner edges of the two frames. By this means, a substantially draft-proof structure is had, and a structure which is substantially proof against water leakage.

Any water however, which may beat in, enters a pocket 50 under the bottom 26 of the frame 21 and drains off through an opening 51 and a discharge plate 52 to the outside of the building.

The top 25 and bottom 26 of the frame 22 are provided with transversely extending tracks 53 in order to slidably accommodate grooved metal sash members 54 mounting traction rollers 55. As best seen in Fig. 3, rails 56 corresponding to the tracks 53 are formed on the vertical side frame section 28 receiving the grooved lateral edges of the sashes 54.

The sashes 54 may be optionally slidably projected through registering openings 57 and 58 in the side frame members 27 and 20, and moved into a suitable pocket 59 arranged in the building wall 10 adjacent the frame 11.

By using the three sashes to mount an ordinary window, a storm window and a screen respectively, substantially all weather conditions may be taken care of by slidably projecting the desired sashes back into the wall pocket. It will also be apparent that this ability to slide the sashes laterally through the openings 57 permits them to be readily pulled out and cleaned on both sides or repaired when the swinging frame 22 has been swung ajar as in the dotted line position of Fig. 2.

It is of course immaterial just what type of windows are mounted in the sashes 54. If desired, sliding windows might be accommodated therein. Their use however leads to complications, and I prefer to mount in the sashes glazed window panes incapable of movement except as a unit with the sash.

Means is provided for latching the sashes in their home position of Fig. 3. Such means like the latch 38 may take a multitude of forms. I have however, illustrated in Fig. 7, the use of a latch 60 housed within the hollow sash frame 61, and working through an opening 62 in the frame into engagement with a keeper opening 64 in an associated rail 56. This latch 60 is mounted on a bushing 65 fixed to a push-button 66, the latter working through the hollow sash frame 61 and being normally spring held in latch-operating position by a light contractile spring 67. As the button 66 is pushed inwardly however, from the position of Fig. 7, latch 60 will be disengaged, thereby permitting the sash to be rolled on its tracks to any desired position.

The particular manner in which the hollow sash frame 61 is formed is also subject to considerable variation. I have illustrated however, in Fig. 6, the use of a pair of longitudinally bent metal plates 61^a and 61^b, which plates cooperatively provide a groove 70 for the glass pane 71 and also cooperatively provide a groove 72 receiving the tracks 53, 56. A plate 73 secured against the inner face of the member 61^b is provided with a bushing 74 serving as a spindle for the roller 75 which projects through an opening 76 into the groove 72 and serves as a traction means. Plate 74 is held against endwise movement by the use of a screw 77 passed through the plate 61^a into the bushing 74. As seen in Fig. 3, at points where no rollers are desired, the screws 77 screw directly into offset portions 78 of the plates 73 holding the latter against endwise movement. Plates 73 are held against movement away from the member 61 by bending the edges of such member around them at 80, 81.

This arrangement permits ready replacement of a broken pane since by simply unscrewing and removing strip 61^a, the broken pane may be removed and replaced and the strip put back without the use of putty.

In Fig. 8 I have illustrated a slight modification, in which two swinging frame members 100, 101 are hingedly connected together at 102. These members when closed being arranged in edge to edge relationship and carrying sashes 103 adapted to be slid into pockets at opposite sides of the window opening (not shown).

From the foregoing description it will be apparent that I have provided a window which is well adapted for all-year-round serv-

ice, and for maintaining a comfortable temperature in a room both in winter and summer. The sash manipulation to meet varying weather conditions is extremely simple. The sashes may readily be kept clean, the window is absolutely storm-proof and draft-proof, and it is practically impossible to forcibly open or unlatch the window from the outside.

Various changes and alterations might be made in the general form and arrangement of the parts described without departing from the invention. Hence I do not wish to limit myself to the details set forth, but shall consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar for cleaning or repairs.

2. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, and a sash receiving chamber arranged in the wall at one side of the stationary frame into which said sashes may be laterally projected when the swinging frame is closed.

3. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, and a sash receiving chamber arrangeed in the wall at one side of the stationary frame into which said sashes may be laterally projected when the swinging frame is closed, said frames having registering slots therein through which the sashes are moved into the wall chamber.

4. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said swinging frame including rails at its top and bottom guiding the sliding movement of the sashes.

5. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said swinging frame including rails at its top and bottom guiding the sliding movement of the sashes, the edges of the sashes being grooved to straddle the rails.

6. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said swinging frame including rails at its top and bottom guiding the sliding movement of the sashes, the edges of the sashes being grooved to straddle the rails, and traction wheels in the grooves riding on the rails.

7. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, and a sash receiving chamber arranged in the wall at one side of the stationary frame into which said sashes may be laterally projected when the swinging frame is closed, sash guiding rails arranged in the swinging frame and the wall chamber upon which the sashes travel.

8. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, and means carried by the sashes and swinging frame for normally latching the sashes against removal.

9. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, and means carried by the sashes and swinging frame for normally latching the sashes against removal, said sashes including grooved edges receiving ribs on the frame, said latching means including cooperating devices on the sash edges and ribs.

10. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said sashes including an inner glazed sash and an outer screened sash.

11. A window including a stationary frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said sashes including an inner glazed sash, an outer screened sash, and a central storm sash.

12. A window including a stationary

frame, a frame hingedly mounted therein and a plurality of sashes carried by the swinging frame capable of removal by a lateral sliding movement through the free side of the hinged frame when the latter is ajar, said swinging frame and stationary frame including means to cause double peripheral abutment thereof when the swinging frame is closed.

Signed at New York in the county of New York and State of New York this 6th day of February, A. D. 1928.

FRANK X. GRASER.