Aug. 11, 1931. M. A. LISCHICK 1,818,411

WINDOW CONSTRUCTION

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Fig. 2.

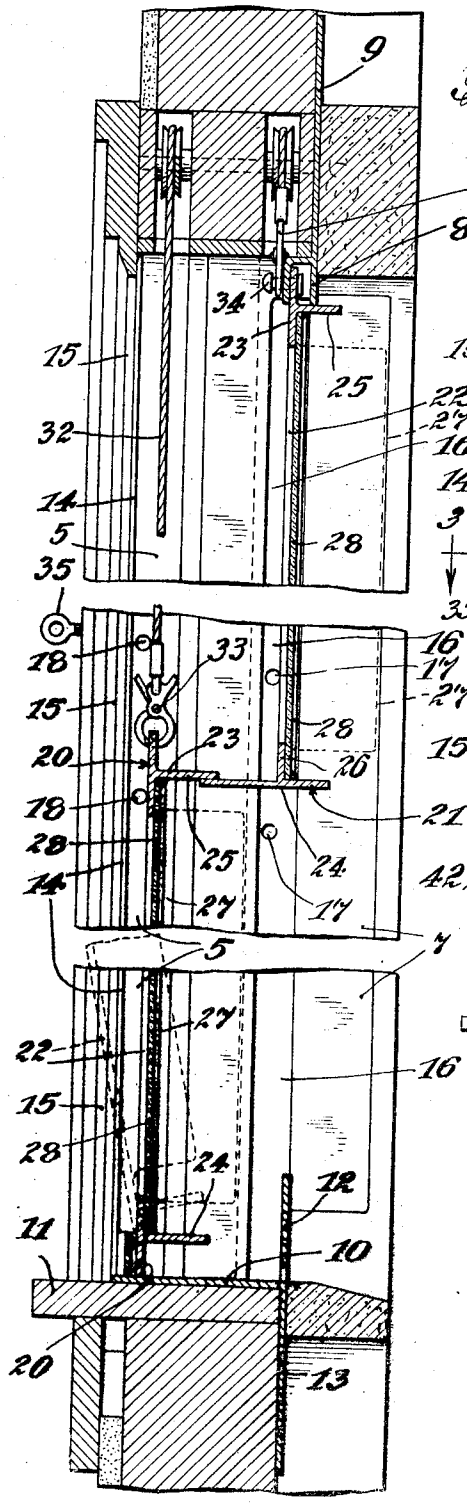
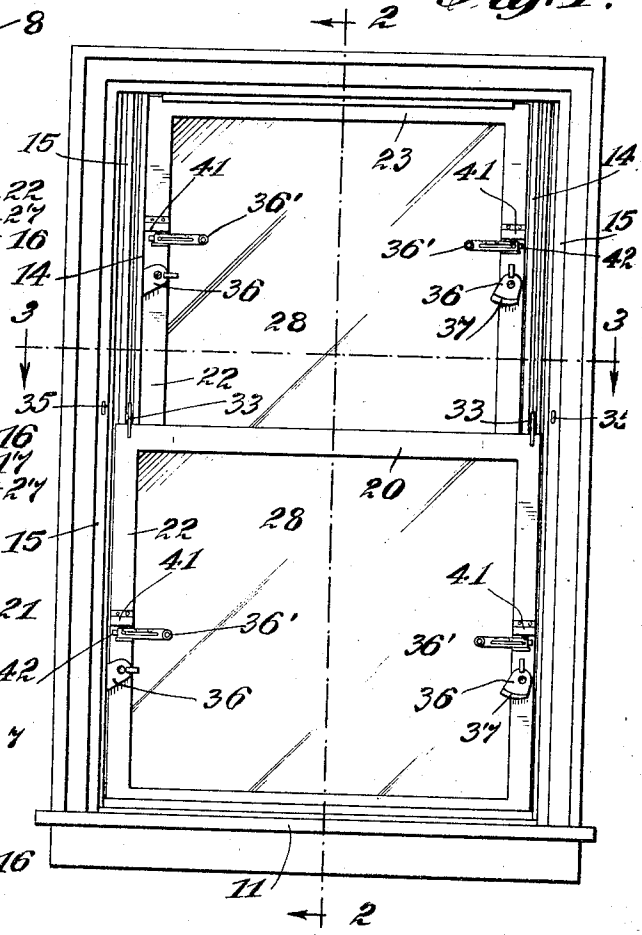


Fig. 1.



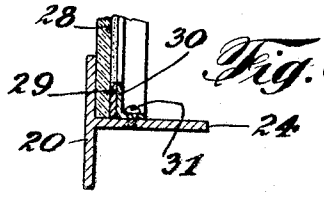


Fig. 8.

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Fig. 3.

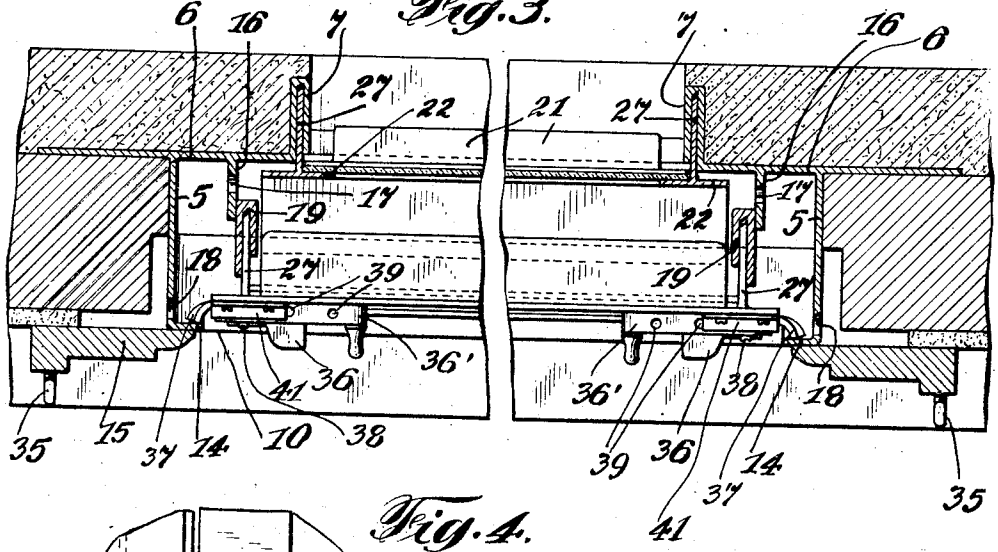


Fig. 4.

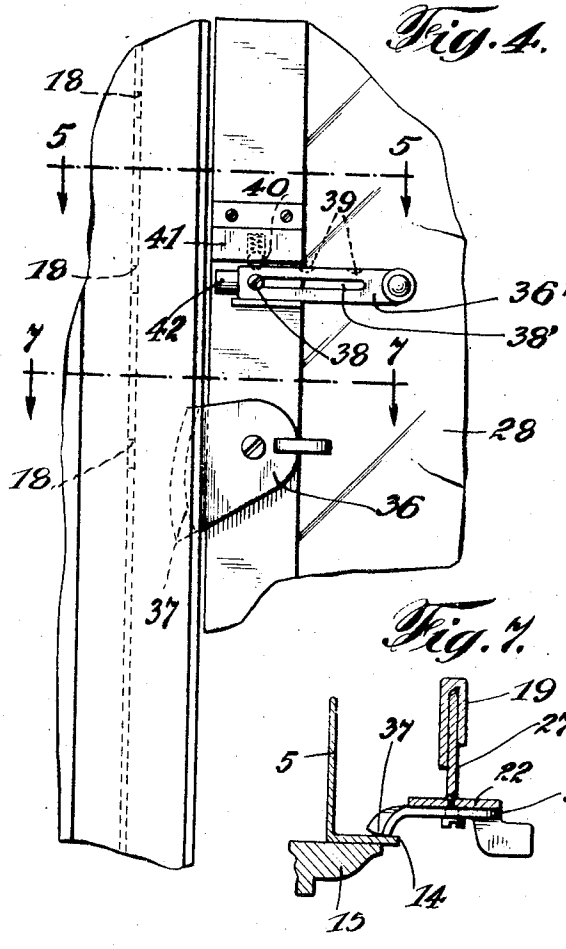


Fig. 5.

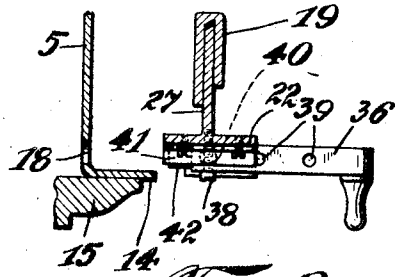


Fig. 6.

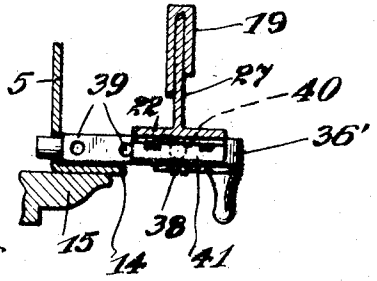


Fig. 7.

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UNITED STATES PATENT OFFICE

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WINDOW CONSTRUCTION

Application filed October 28, 1929. Serial No. 402,867.

This invention relates to window construction, and has for its general object and purpose to provide an improved construction and mounting of the window sashes whereby they may be easily and quickly completely removed from the window frame for the purpose of conveniently washing the glass panes thereof.

It is another object of the invention to provide a window construction wherein both the frame fixed in the building wall, as well as the sash frames are completely constructed of metal, such structures however, being relatively light so that the sashes can be easily handled without great physical strain.

It is also an additional object of the invention to provide the window frame structure and the sashes with means whereby the sashes may be tightly held in the frame to effect a substantially water and air tight closure between said frame and the sashes.

It is also a further object of my invention to provide simple and easily operable means whereby the sashes may be releasably locked or secured in vertically adjusted positions in the frame for purposes of ventilation.

With the above and other objects in view, the invention consists of the improved window construction, and in the form, and relative arrangement of the several parts thereof as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have shown one simple and practical embodiment of the invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Fig. 1 is an elevation of my new window construction, both of the sashes being shown in closed position;

Fig. 2 is a vertical sectional view taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged detail fragmentary elevation showing the means for securing the sashes against sliding movement and also latching the same in adjusted position;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a similar view showing the adjustable bolt carried by the window sash in its latching position;

Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 4, and

Fig. 8 is a fragmentary vertical section through one of the sashes showing an alternative means for securing the sash glass therein.

Referring in detail to the drawings, and more particularly to Fig. 3 thereof, it will be seen that I provide a metallic window frame structure including the vertically extending side bars 5 each of which is provided on its outer edge with the web 6 extending laterally in opposite directions from said side bar. At its inner edge, this web is provided with an outwardly angled vertically extending U-shaped flange or guide channel 7 of appreciable depth.

At their upper ends, the side bars 5 of the window frame are connected by the inverted U-shaped cross bar 8 providing a downwardly opening channel, the outer wall of said cross bar being vertically extended upwardly as at 9.

The lower ends of the side bars 5 of the frame are also connected by the cross bar 10 which rests upon and is secured to the window sill 11, said cross bar at the outer side of the frame being integrally connected by the upwardly extending web 12 with the lower ends of the channel flanges 7, said web being also extended downwardly below the cross bar 10 as at 13. This frame structure, is mounted in the masonry or wall structure of the building and is rigidly supported thereby in the manner shown in Fig. 3 of the drawings. The inner edges of the side bars 5 of the frame are provided with inwardly projecting flanges 14 which are adapted to bear against the ornamental interior wood molding 15 surrounding the window opening.

The outer vertical webs 6 of the metal frame structure in spaced relation to each of the side bars 5 thereof and the channel flanges 7 are provided with the integral forwardly extending vertical flanges 16, each of

which is provided at vertically spaced points with the openings indicated at 17. Similar openings 18 are also provided in the walls 5 adjacent to the flanges 14 on the inner edges thereof.

To the inner side faces of each of the flanges 16 a vertically extending channel bar 19 is welded or otherwise rigidly fixed.

Inner and outer sash frames 20 and 21 respectively, are also in the form of light metal castings, each of said frames including the opposite vertical side bars 22 connected by top and bottom rails 23 and 24 respectively. Each of the top rails includes a plate or bar disposed in a vertical plane and having a web or flange 25 centrally projecting outwardly therefrom. The bottom rail of the lower inner sash is also of the same form while the bottom rail of the upper sash consists of a plate or bar disposed in a horizontal plane and having an upstanding flange 26 in spaced relation to its outer edge which is disposed in the plane of the top rail 23 of said sash and the side bars 22 thereof. The opposite side bars of each sash are further provided intermediate of their opposite edges with the outwardly extending webs or flanges indicated at 27. These flanges of said sashes are respectively slidably engaged in the channel bars 7 and 19 respectively, of the window frame. In Fig. 2 of the drawings, I have shown the glass panes 28 secured in each sash against the outer faces of the vertically extending webs thereof in the conventional manner, as by the use of putty. In Fig. 8 however, I have shown a continuous strip of asbestos or other fibrous material 29 engaged against the outer side of the glass pane at the marginal edges thereof and tightly compressed against the same to hold the pane in place against the flanges of the sash frame by the angular metal strip 30, one flange of which is secured to the horizontal webs of the sash frame by suitable screws indicated at 31.

The sash cords or chains 32 for the respective sashes are mounted in the adjacent wall structure in the usual manner and connected at one of their ends to suitable counterweights (not shown). The other ends of these sash cords are provided with the hooks indicated at 33 which may be detachably connected with the upper ends of the respective sashes. Thus, in Fig. 2 of the drawings, I have shown the top rail of the lower sash provided adjacent its opposite ends with openings through which hooks 33 are engaged while the top rail of the upper sash is provided with pins or studs indicated at 34 with which the hooks can be detachably connected. For the purpose of holding the free ends of the sash cords when disconnected from the sash frames, I may provide the eye-bolts, screws or other suitable means indicated at 35 fixed in the wood moldings 15 to which the hooks 33 can be temporarily attached.

For the purpose of tightly holding the respective sashes against sliding movement relative to the window frame, I provide upon the inner side of each sash the pivoted plates 36 each of which is provided at one end with a cam flange 37. When these pivoted plates are manually moved in one direction, the edges of the cam flanges 37 ride against the inner sides of the flanges 14 on the opposite side bars 5 of the window frame and by frictional coaction therewith, urge the window sashes outwardly, thus causing tight frictional bearing pressure of the outer edges of the flanges 27 on said sashes against the base walls of the channels in the flanges or bars 7 and 19 on the window frame. When both sashes are in closed position, as seen in Fig. 1, the outer edge of flange 23 on the top of the lower sash engages closely upon the upper side of the lower horizontal bar 24 of the upper sash while the web 25 of the top rail on the upper sash bears tightly against the lower edge of the outer wall of the top bar 8 in the window frame. Thus, a substantially water and air tight closure of the opening through the window frame may be secured.

For the purpose of holding either of the sashes in vertically adjusted position in the frame so that ventilation may be obtained, I provide the horizontally sliding latch bolts 36′ on the opposite vertical bars of each sash, said sash bars having suitable guide means such as screws 38 engaged in longitudinal slots 38′ of the latch bolts. The upper edge of each latch bolt is provided with longitudinally spaced cavities 39 in which a spring pressed ball 40 mounted in suitable housings 41 are adapted to engage and hold the sliding latch bolts in their adjusted positions. The outer end of each latch bolt terminates in a cylindrical stud or pin 42. These pins, when the latch bolts are shifted outwardly are adapted for engagement in the openings 17 and 18 of the window frame. By providing a desired number of these openings suitably spaced apart, the sashes may thus be locked and held in various adjusted positions with a greater or less opening between one end of the sash and the window frame.

From the foregoing description, the construction and several advantages of my invention will be clearly understood. It will be readily apparent that by simply moving the pivoted plates 36 to a disengaged position with respect to the flanges 14 on the window frame as shown at the left hand side of Fig. 1, and then disengaging the sash cord hooks 33 from the sash frames, said sash frames may be lifted and completely removed from the metallic window frame structure, as indicated in dotted lines in Fig. 2 of the drawings. Thus, the entire sash can be immersed in a suitable cleaning solution, and both sides of the glass

pane, as well as the parts of the metal sash frame quickly and thoroughly cleaned. The sash can then be again easily and quickly mounted in its operative position in the window frame. Thus it becomes entirely unnecessary for one to risk life and limb by standing on the window sill outside of the window opening in order to wash the outer sides of the glass panes.

In the foregoing description, I have referred to an embodiment of my invention which I believe to be entirely practical for the purpose in view. It will also be seen that in view of the metallic construction of the frame and the window sashes, the parts thereof will be exceedingly durable, and since of course, they are unaffected by moisture or changes in temperature, these sashes will always slide freely in the frame structure, without binding. At the same time, however, these metal sashes can be very tightly locked in the window frame to exclude air and moisture when desired. It will of course, be apparent that the essential features of my present invention and the advantages thereof might likewise be secured in various other alternative structures, and I accordingly reserve the privilege of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. In window construction, a metal frame mounted in the building wall and provided at each side of the window opening with laterally spaced vertically extending guide channels opening toward the inner side of the frame, metal window sash frames, each having vertically extending flanges disposed at right angles to the plane of the sash and slidably engaged in corresponding window frame channels at opposite sides of the window opening and removable therefrom to permit the sashes to be removed from and replaced in the window frame, and means carried by each sash cooperating with parts of the window frame to lock the sashes against sliding movement and effect a substantially air tight connection between the flanges thereof and said guide channels.

2. In window construction, a metal frame mounted in the building wall and provided at each side of the window opening with laterally spaced vertically extending guide channels opening toward the inner side of the frame, metal window sash frames, each having vertically extending flanges disposed at right angles to the plane of the sash and slidably engaged in corresponding window frame channels at opposite sides of the window opening and removable therefrom to permit the sashes to be removed from and replaced in the window frame, means carried by each sash cooperating with parts of the window frame to lock the sashes against sliding movement and effect a substantially air tight connection between the flanges thereof and said guide channels, and additional means carried by each sash and coacting with the frame to releasably latch the sashes in vertically adjusted positions relative to the frame.

3. In window construction, a metal frame mounted in the building wall and provided at each side of the window opening with laterally spaced vertically extending guide channels, metal window sash frames having vertically extending flanges slidably engaged in corresponding window frame channels at opposite sides of the window opening and removable therefrom to permit the sashes to be removed from and replaced in the window frame, and cam members pivotally mounted in each of the sashes and adapted to coact with parts of the window frame to bodily shift the window sashes relative to the frame and effect a frictional locking connection between said flanges on the sashes and the guide channels of the window frame.

4. In window construction, a metal window frame mounted in the building wall having vertical side portions provided at the inner side of said flange with inwardly extending longitudinal flanges, the outer side of said flange, at each side of the window opening being formed with a vertically extending guide channel and between said guide channels and the side walls of the frame having inwardly projecting vertically extending webs, a vertical channel bar fixed to each of said webs, a lower metal window sash having flanges slidably engaged in the channels of said bars, an upper metal window sash having vertically extending webs slidably engaged in the channels at the outer side of the window frame, sash cords and means for releasably connecting the same with the upper ends of the respective window sashes, means carried by each sash to coact with the window frame and releasably latch the sashes in vertically adjusted positions relative to said frame, adjustable means on the lower sash to coact with said flanges on the side walls of the window frame to releasably lock said sash in connection with said channel bars, adjustable means carried by the upper sash to coact with said channel bars and releasably lock said latter sash in connection with the other channels on the window frame, and each of said adjustable means being operable to release the respective sashes whereby they may be completely removed from their operative positions in the window frame when the sash cords are detached.

5. In window construction, a metal frame provided at each side of the frame opening with laterally spaced vertically extending channels opening towards the inner side of the frame, metal window sash frames each having vertically extending channels pro-

jecting rearwardly therefrom at right angles to the plane of the sash frame, and insertable into or removable from corresponding window frame channels at opposite sides of the frame opening for slidably guiding the vertical movement of the sash frame relative to the window frame, and means for removably retaining the sash frames in assembled relation within the window frame.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

MAX ALFRED LISCHICK.