June 12, 1956 A. F. LICKTEIG 2,749,578

REMOVABLE SASH STRUCTURE

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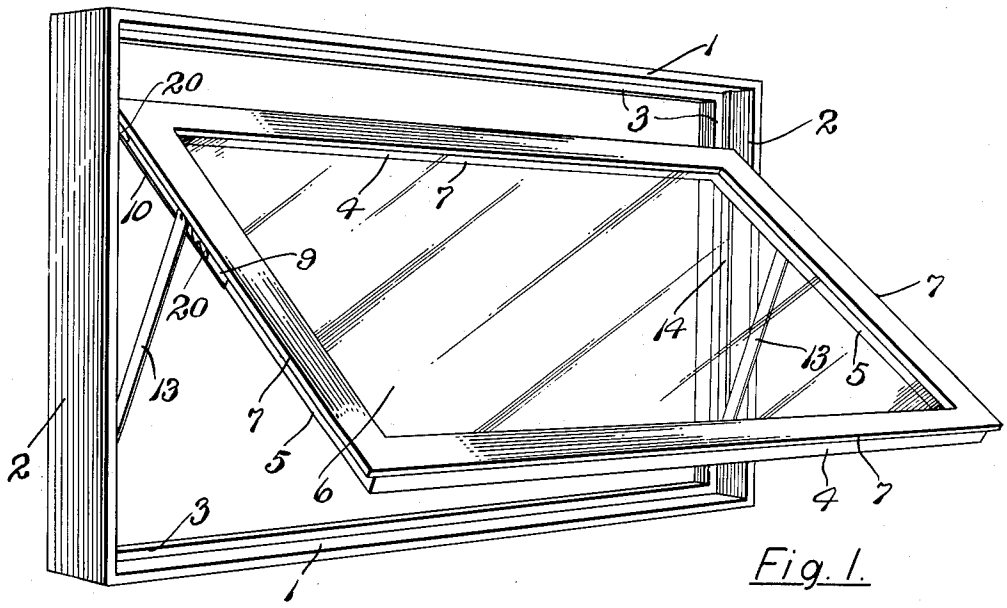


Fig. 1.

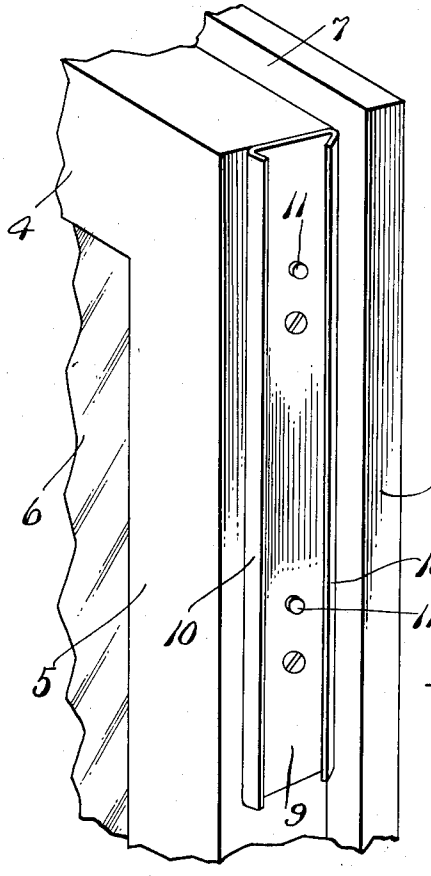


Fig. 2.

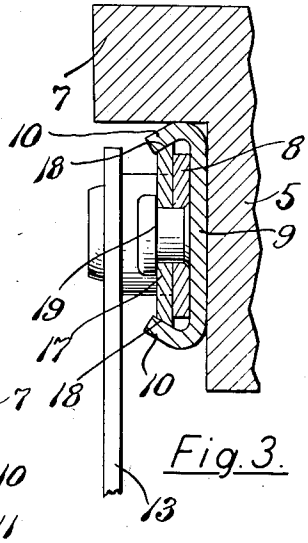


Fig. 3.

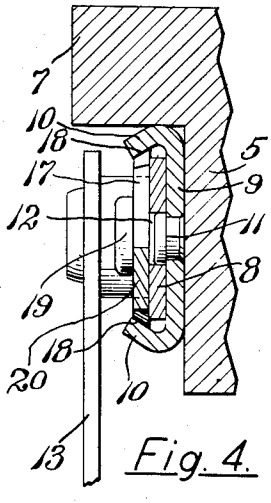


Fig. 4.

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REMOVABLE SASH STRUCTURE

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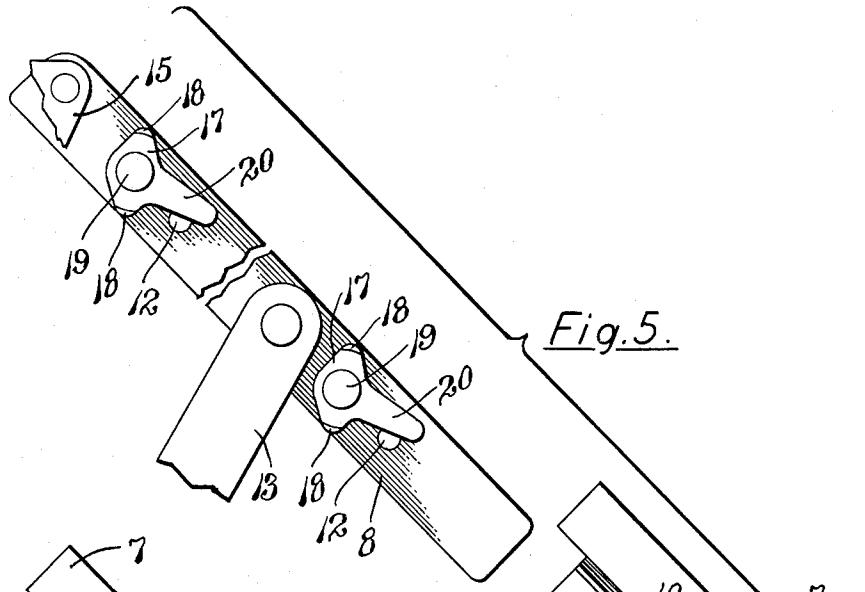


Fig. 5.

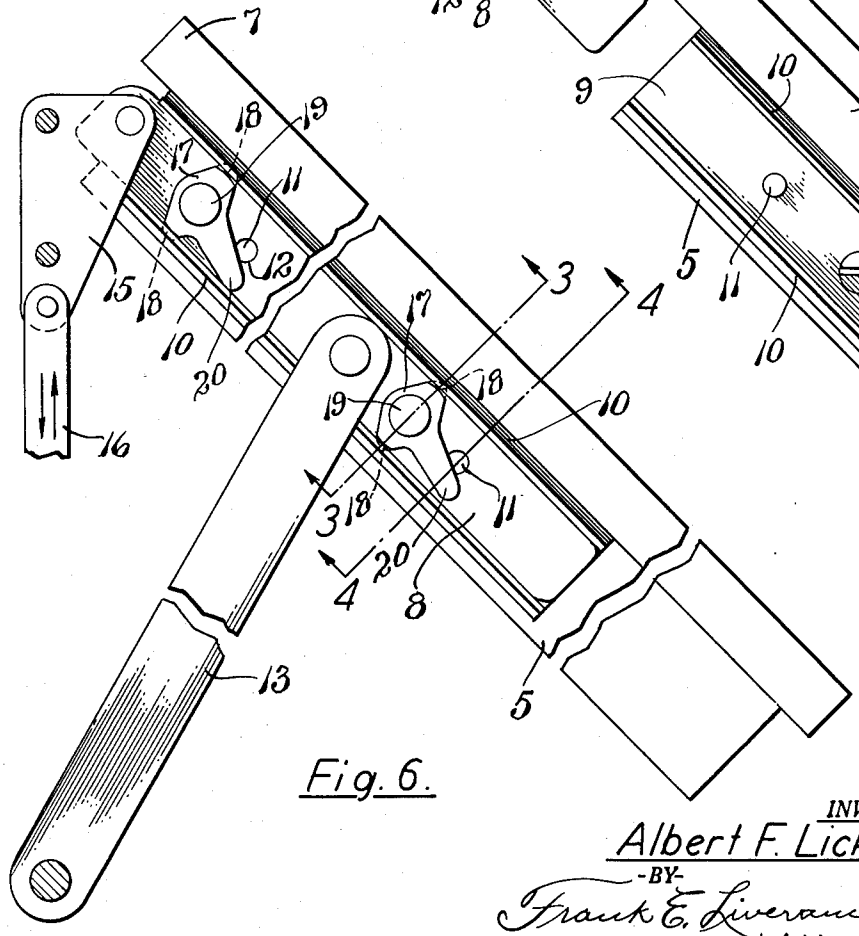


Fig. 6.

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REMOVABLE SASH STRUCTURE

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Application November 26, 1954, Serial No. 471,436

5 Claims. (Cl. 20—42)

The present invention relates to window sashes of the adjustable awning type and is primarily concerned with a practical, simple and economical mounting of the sash so that whenever desirable the sash may be easily disconnected from its operating mechanism and removed. Such removal may be desirable at times when the glass of the sash is broken or for various other reasons. It is an object and purpose of the present invention to provide a very simple, sturdy, durable and effective structure for securely holding the sash when it is in operative use and for quickly detaching and removing it when it is desired to do so.

An understanding of a preferred embodiment of the invention and the structure thereof may be had from the following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a perspective view showing an awning type window sash detachably mounted upon a window frame, the sash being in partly open position.

Fig. 2 is a fragmentary enlarged perspective view of one upper corner portion of the window sash.

Figs. 3 and 4 are transverse sections taken respectively on the planes of lines 3—3 and 4—4 of Fig. 6, looking in the directions indicated by the arrows.

Fig. 5 is an end elevation showing a separated, fragmentary portion of the upper end of the sash and the member which is detachably connected therewith, one being used at each side of the sash, and

Fig. 6 shows the sash in end elevation, and the structure in side elevation at each end and upper portion of the sash for the detachable and removable mounting of the sash.

Like reference characters refer to like parts in the different figures of the drawings.

The environment in which my invention is applied includes an open vertical rectangular window frame having horizontal parallel upper and lower sides 1 with spaced parallel vertical ends 2. Within the frame a back stop 3 for the window sash in provided by inwardly extending ribs secured to and between opposite edges of the sides 1 and ends 2.

The window sash which fits this frame is of rectangular form having upper and lower parallel sash bars 4 and parallel ends 5 providing a glass holding frame which is closed by a glass panel 6. Each of the sides 4 and ends 5 of the window sash are provided at their outer edge portions with projecting flanges 7. The sash when in vertical position comes against the back stops 3 and closes the opening in the window frame.

At the upper portion of each end of the sash and inside the outwardly extending flange 7 thereof a somewhat elongated channel member is located extending from the upper end of each side 5 downwardly toward the middle point thereof, associated with which is a flat bar 8. Bars 8 lie against webs 9 of the channels and between the flanges 10 thereof, one of each longitudinal edge of the web 9. The flanges 10 converge inwardly toward each other being located at an acute angle to the planes of

the webs 9. The channels are permanently secured to the ends 5 of the window sash by screws or similar connections as shown in Fig. 2. From the web of each channel spaced projections 11 extend outwardly above the outer surface of such web 9. Such projections are shown as headed rivets but may be equivalently supplied by a suitable outward pressing of the metal of the web 9. The bars 8 are provided with openings 12, spaced the same distances as the projections 11, so that when in place the projections 11 enter the openings 12 as in Fig. 4.

A brace bar 13 is pivotally connected at its upper end to each of the bars 8 between the ends thereof and at its lower end to the lower end of a vertical channel guide 14 which is secured at the inner side of each end 2 of the window frame. A triangular plate 15 of flat metal is pivotally connected at one corner of the plate to the upper end of each bar 8. At the lower corner of the triangular plate 15 a bar 16 extends downwardly and is guided in the channel guide 14. As shown in the pending application, Serial No. 362,217, filed June 17, 1953, such bar 16, provided with rack teeth, is manually operable for the moving of the window sash from closed to open position and vice versa. The detail of such mechanism forms no part of the present invention and need not be shown and described.

At the outer side of each of the plates 8, spaced flat latching plates 17 are located each at each end being shaped with an inclined surface as at 18, and each being rotatably mounted between its ends on the plate 8 on pins 19. Each latching plate 17 is provided with an integral laterally extending handle 20 for manual operation.

In Fig. 6 the latching plate 17 shown has been turned to bring the ends 18 thereof within and against the inner sides of the inclined flanges 10 of the described channels thereby releasably securing said plates 17 in place. The plates 8 held against any longitudinal movement by the projections 11 are securely held in place but may be released by turning the latching plates or members 17 in a counter-clockwise direction (Fig. 6) so as to withdraw the ends 18 from underneath the flanges 10, whereupon the plate 8 may be moved to disengage from projections 11 and thereafter disconnect it from the channels in which located.

Such disconnection frees the window sash for removal from the window frame and from the mechanism which carries such sash and mounts it on the frame.

The mechanism described is simple in construction and assembly, readily manufactured and installed and provides a very practical and useful means for removably mounting the window sash on the frame in which it is installed. Such removal either for repair or replacement is desirable at times and the structure described accomplishes such removal in a satisfactory and economical manner.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A window sash, a channel permanently secured at each end and at the upper portion of said sash, each channel having a web secured to the sash and outwardly extending converging flanges at the longitudinal edges of said web, a flat bar located against each of said webs between the flanges associated therewith, means mounted on said bars releasably engaging with said flanges for releasably securing the bars to said channels, a window sash frame and means connecting said bars to said frame for mounting the sash on the frame for movement from vertical closed position of said sash to open position thereof.

2. An open vertical window frame, a window sash adapted to close said frame, a channel member secured to said sash at each end and upper portion thereof, each channel member having outwardly extending converging flanges, a flat bar in each of said channels, flange engaging members mounted on said bars at the outer sides thereof for turning movement to engage with and disengage from the flanges of said channels, thereby releasably securing the bars to the channels, and means connecting said bars to the ends of the frame for mounting the sash for swinging movements between closed vertical position of the sash and outwardly extending open positions thereof.

3. Structure having the elements in combination defined in claim 2, said bars having spaced openings therethrough and said channels having outwardly extending projections received in said openings.

4. An open, vertical, rectangular window frame, a window sash adapted to close said frame, a channel member at each end and upper portion of said sash permanently secured to the sash, said channel members having webs connected with the sash and outwardly extending flanges converging toward each other, a flat bar in each channel located against the web thereof, flat members rotatively mounted on and at the outer side of each bar, each having an end shaped to frictionally engage with and against the inner side of a flange of its associated channel member for releasably securing the bars to said channel members, and means for mounting the sash on the frame for movements of the sash between open or closed position.

5. Structure as defined in claim 4, and pins passing through said flat members between the ends thereof, and means for manually turning said flat members about their associated pins.

References Cited in the file of this patent

UNITED STATES PATENTS

1,614,166 Whitney ---------- Jan. 11, 1927