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STORM WINDOW OR SCREEN MOUNTING STRUCTURE

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2 Sheets-Sheet 2

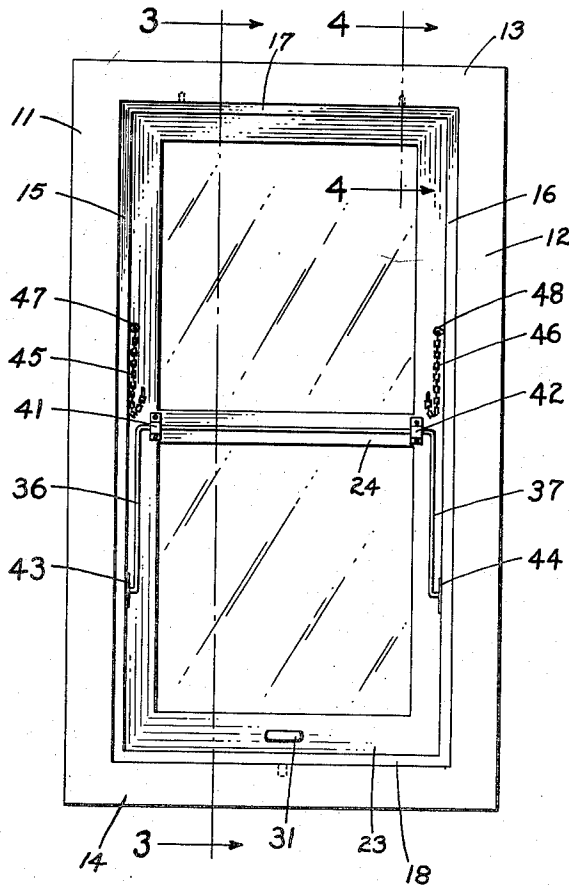


FIG. 2

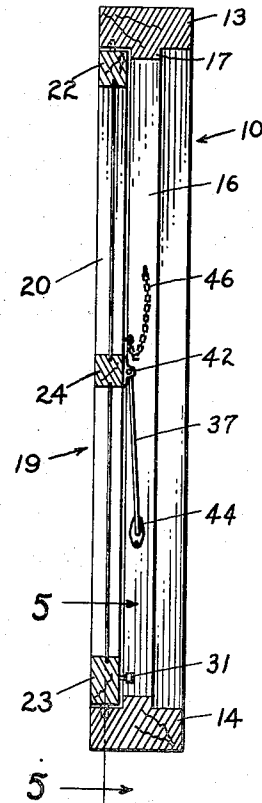


FIG. 3

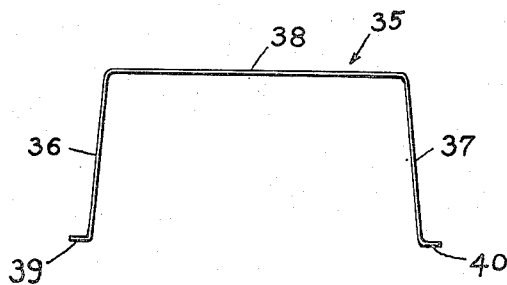


FIG. 6

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## UNITED STATES PATENT OFFICE

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STORM WINDOW OR SCREEN MOUNTING  
STRUCTURE

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2 Claims. (Cl. 20-55)

1

This invention relates to storm windows, window screens and other similar temporary or removable framed structures mounted on the outside of windows, and more particularly is directed to improved mountings or retainers for holding such storm windows, window screens or the like to the window frame, so that they may be removed and reinstalled with a minimum of effort.

Heretofore, storm windows, window screens or the like have been pivotally supported at their upper end by hooks fixed to the head member or lintel of the window frame, and held against swinging relative to the window frame by a latching mechanism at the bottom or sill. Such hooks open upwardly and extend through eyes at the top of the framing or sash of the storm window or window screen. In order to prevent inadvertent removal of the hooks from the eyes, the parts are so shaped and dimensioned that they can be disengaged only when the removable framing or sash is pivoted outwardly away from the window frame to enclose a substantial angle with the latter. Therefore, with the mounting devices for storm windows and window screens previously in use, placing the removable framing or sash in position requires, first, raising of the sash to a position in which the hooks and eyes are registered and, second, swinging the window or screen outwardly away from the window frame for inserting the hooks through the eyes. Since the hooks are positioned at the top of the window frame, and since their engagement with the eyes can be effected only when the window or screen is extremely inclined, the installation and removal of such storm windows or window screens is a tedious, awkward and sometimes dangerous task.

Therefore, a general object of this invention is to provide improved mounting or retaining means for storm windows, window screens or similar temporary, removable sash structures for window openings, which permit them to be easily installed in, and removed from, the supporting window frame.

Another object of this invention is to provide mounting or retaining means for storm windows, window screens or the like wherein the storm window or screen may be installed or removed from inside the window frame.

A further object is to provide mounting or retaining means of the character described wherein the storm window or window screen is held within the window frame at its top and bottom members, and is attached to the frame during installation and removal, as well as guided

2

to its supported position, by a member pivoted centrally thereon and removably engaging the side frame members at the lower portions of the latter so that the storm window or window screen may be attached to, or removed from, the window frame without the necessity of reaching to the top portions of the window frame.

According to features of the invention, the removable framing or sash is provided with pins at its upper edge which are received in suitable receptacles in the head or lintel of the window frame and with a latch at its lower edge entering into a keeper in the sill or lower window frame member for holding the removable storm window or screen in its supported position. In order to guide the sash to the supported position in the window frame, a substantially U-shaped resilient member is pivoted on the inner side of the sash substantially midway between its top and bottom edges with the ends of the legs thereof formed for being pivotally received in receptacles carried by the lower portions of opposite side frame members and opening towards each other. The legs of the pivoted U-shaped member may be inserted into and removed from their receptacles by springing the legs together, and the U-shaped member is so proportioned that the sash is in supported position within the window frame when the U-shaped member is substantially flush against the inner side thereof.

These and other objects, features and advantages will be apparent in the following detailed description of a preferred embodiment which is to be read in connection with the accompanying drawings, forming a part thereof, and wherein:

Fig. 1 is a perspective view of a preferred embodiment of the invention viewed from the outside, and with the illustrated removable framing or sash shown in an intermediate position during its installation or removal;

Fig. 2 is a vertical elevational view of the embodiment of the invention, as viewed from the inside of the window frame, and with the removable framing or sash in supported position within the window frame;

Fig. 3 is a vertical sectional view taken along the line 3-3 of Fig. 2;

Fig. 4 is an enlarged, fragmentary, vertical section view taken along the line 4-4 of Fig. 2;

Fig. 5 is an enlarged, fragmentary, vertical sectional view taken along the line 5-5 of Fig. 3, and,

3

Fig. 6 is an enlarged detail plan view of an element of the preferred embodiment.

Referring to the drawings showing a preferred embodiment of this invention, a conventional window frame 10 is illustrated which includes spaced apart, vertical side members 11 and 12, a head member or lintel 13 connecting the top ends of side members 11 and 12, and a horizontal sill 14 connecting the bottom ends of the side members. While the illustrated window frame is rectangular and the various members, noted above, are preferably formed of wood, it is apparent that the invention may be practised with equal facility in connection with window frames of other shapes and materials.

The illustrated window frame further includes conventional outer stops guiding the sashes of the window (not shown) and also providing a seating shoulder against which the framing or sash of the removable or temporary storm window, window screen or the like, may engage. The outer stops in the illustrated window frame are formed of suitable elongated strips 15, 16, 17 and 18 secured to, or formed integrally with, the enclosed surfaces of the side frame members 11 and 12, lintel 13 and sill 14, respectively, and spaced inwardly from the outer edges thereof.

The window screen or storm window is of conventional construction, and includes a framing or sash 19 formed of stiles 20 and 21, top and bottom cross-members 22 and 23 connecting the ends of the stiles, and an intermediate cross-member 24 connecting stiles 20 and 21 substantially midway between their ends. The sash 19 is dimensioned and proportioned to fit into the window frame 10 and to seat against the outer stops of the latter. Screening or window glass is secured within the sash 19 of the window screen or storm window in a conventional manner.

This invention resides in the hereinafter recited devices for holding the removal sash 19 in the window frame 10, and for guiding it to and from this fixed position during the installation and removal thereof.

The removable sash 19 is held in fixed position by pins 25 which are driven into top cross-member 22 and extend from the top edge thereof to be received in registering receptacles 26 provided in lintel 13 outwardly of the outer stop 17. To prevent excessive wearing of the receptacle, a metal cup or socket 27 may be used as a lining (Fig. 4). The lower end of removable sash 19 is held in window frame 10 by a suitable latching mechanism, and the details of a preferred mechanism are shown in Fig. 5. A bore 28 formed in bottom frame member 23 opens through the bottom edge of the latter and a cylindrical casing 29 is disposed in bore 28. A rotatable shaft 30, having gear teeth formed thereon, projects at one end into casing 29 and has an operating handle 31 fixed on the other end thereof at the inner side of frame member 23. A plunger 32 is slidable in casing 29 and is formed with a gear rack 33 meshing with the gear teeth of shaft 30, so that plunger 32 is extended and retracted relative to the bottom frame member 23 in response to rotation of handle 31. A socket 34 is fixed in the sill 14, and registers with plunger 32, when sash 19 is in position, to receive the extended plunger and prevent removal of the storm window or screen.

The sash 19 is guided to and from its fixed position in window frame 10 by a substantially U-shaped resilient member 35 (Fig. 6). Member 35 includes a pair of legs 36 and 37, connected to-

4

gether at one end by straight cross-member 38, and diverging slightly from their connected ends. The free ends of legs 36 and 37 are bent away from each other, as at 39 and 40, respectively. Bearing members 41 and 42 are secured to the inner side of sash 19, at the cross-member 24 thereof, and receive straight portion 38 of member 35 so that legs 36 and 37 of the latter are free to swing in unison relative to sash 19. Sockets 43 and 44 are fixed in outer stop forming strips 15 and 16, near the bottom ends thereof, to rotatably and releasably receive the bent portions 39 and 40 of member 35. As seen in Fig. 3, sockets 43 and 44 are so disposed that legs 36 and 37 are substantially vertical when sash 19 is in fixed position in window frame 10.

To provide additional security, and to prevent the inadvertent dropping of framing or sash 19 while it is being installed or removed, safety chains 45 and 46 are secured at one end to stiles 20 and 21 and are provided with hooks at their other ends for removably attaching to eyes 47 and 48 fixed to the sides of the window frame.

Installation of sash 19 in window frame 10 is effected by raising the former substantially to the level of the latter and initially securing chains 45 and 46 to the respective eyes 47 and 48 so that the sash will be supported in a position adjacent the window frame. The legs 36 and 37 of members 35 may then be flexed together and pivoted relative to sash 19 until bent portions 39 and 40 register with sockets 43 and 44 in the sides of window frame 10. When the legs 36 and 37 are released, bent portions 39 and 40 extend into sockets 43 and 44 for pivotally connecting member 35 to the window frame.

The sash, with member 35 thus pivotally connected to the window frame, is in condition to be guided by pivoted member 35 to its fixed position. In moving sash 19 to such fixed position, the top end thereof is rocked inwardly against side outer stops 15 and 16 (Fig. 1), and then the sash is moved bodily upward against lintel 13 while retaining its top end in contact with the outer stops. During the upward movement of sash 19, legs 36 and 37 pivot upwardly and inwardly about the sockets to substantially vertical positions and draw the bottom portion of the sash inwardly to seat against the outer stop 18 within the frame. As sash 19 moves to its uppermost position against lintel 13, pins 25 enter vertically into sockets 26, and the latch mechanism is actuated by manipulating handle 31 to extend plunger 32 into socket 34 in the window sill.

Removal of sash 19 from the window frame is effected by reversing the above steps. The latching mechanism is actuated to withdraw plunger 32 from socket 34. The bottom portion of the sash is moved outwardly, about member 35 as a pivot, until pins 25 are withdrawn from sockets 26 in the lintel, and then legs 36 and 37 are flexed together and disengaged from sockets 43 and 44 in the sides of the window frame. Finally, safety chains 45 and 46 are disengaged from retaining eyes 47 and 48 to sever the remaining connection between sash 19 and the window frame.

From the above, it will be apparent that installation or removal of sash 19 embodying the devices according to this invention may be effected from the inside of the window frame, and without the necessity of swinging the framing to an extreme angle relative to the window frame. Further, with the recited arrangement, removable sash is guided into and away from its supported position by member 35 which is easily en-

5

gaged with, and withdrawn from, sockets 43 and 44 by reason of the latter's accessible location.

Having thus described in detail a preferred embodiment of this invention, it is to be understood that changes and modifications, obvious to one skilled in the art, may be effected without departing from the scope of the invention which is intended to be defined in the appended claims.

#### I claim:

1. A readily mountable and removable window structure comprising a sash adapted to fit and be held removably within a window frame opening, and a substantially U-shaped mounting member having a straight portion rotatably mounted on and extending across a mid-portion of the sash, resilient legs extending angularly in a common plane from opposite ends of said straight portion at opposite sides of the sash, and portions on the free ends of said legs extending outwardly therefrom in opposite directions on a line substantially parallel to said straight portion for pivotal mounting in axially aligned retainers at opposite sides of the window frame opening, said legs normally holding said end portions spaced apart a distance greater than the distance between the retainers but being springable inwardly for engagement of said end portions in the retainers, the mounting of said straight portion and the length of said legs being such that the U-shaped member when engaged with the retainers will guide the sash from a position spaced downwardly and outwardly from the frame opening to a normal position within said opening, and elongated flexible elements each connected at one end to a side portion of the sash and adapted to be attached at its other end to the window frame for suspending the sash during engagement of said end portions with the retainers.

2. A readily mountable and removable window structure comprising a sash adapted to fit and be held removably within a window frame opening, a member carried by the upper end of the sash for vertical sliding engagement with a member at the top of the frame opening to hold the top of the sash in the frame opening, elongated flexible elements each connected at one end to a side portion of the sash and adapted to be attached at its other end to one side of the window frame opening for suspending the sash in a position spaced downwardly and outwardly from the

6

frame opening, a substantially U-shaped mounting member having a straight portion rotatably mounted on and extending across a mid-portion of the sash, diverging resilient legs extending in a common plane from opposite ends of the straight portion at opposite sides of the sash, and portions on the free ends of said legs extending laterally outward in directions substantially parallel to the straight position for pivotal mounting in axially aligned retainers at the opposite sides of the window frame opening, said legs normally holding said end portions spaced apart a distance greater than the distance between the retainers but being springable inwardly for engagement of said end portions in the retainers, the mounting of said straight portion and the length of said legs being such that the U-shaped member when engaged with the retainers will guide the sash from the suspended position spaced downwardly and outwardly from the frame opening to a normal position within said opening and such that the sash member slidably engages the frame member, and means carried at the bottom of said sash to cooperate with means at the bottom of the frame opening to hold the lower end of the sash in the frame opening.

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