

May 12, 1936.

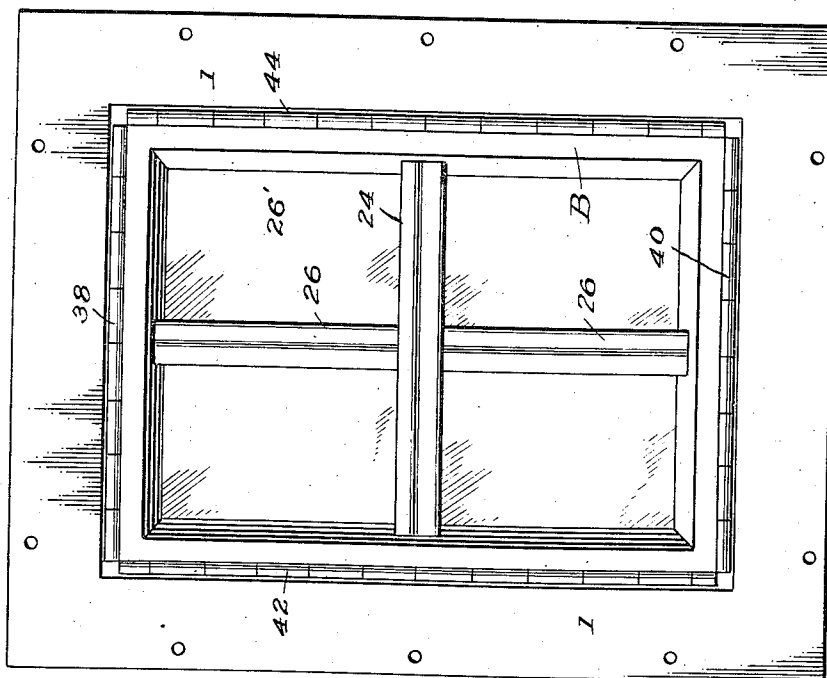
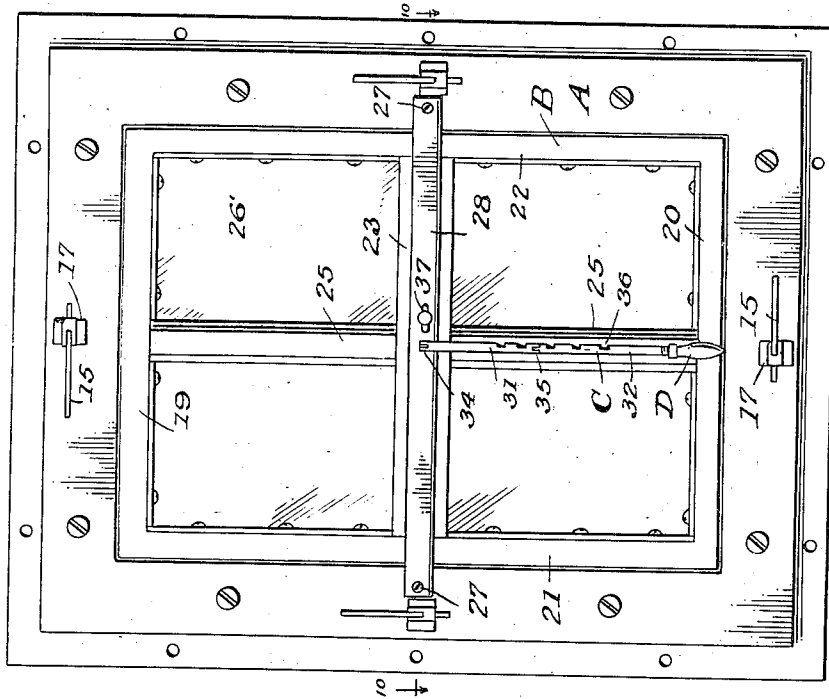
O. K. POMEROY, SR

2,040,332

WINDOW

Filed Sept. 14, 1935

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

Fig. 3.

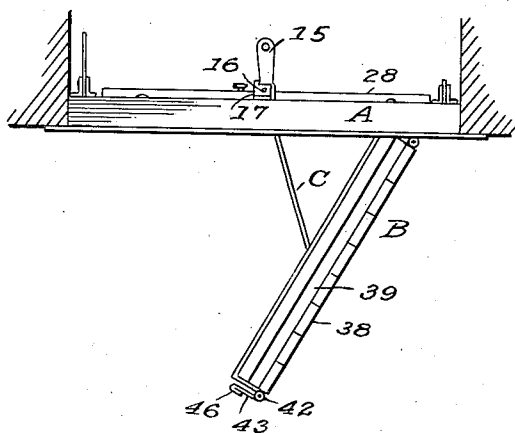


Fig. 4.

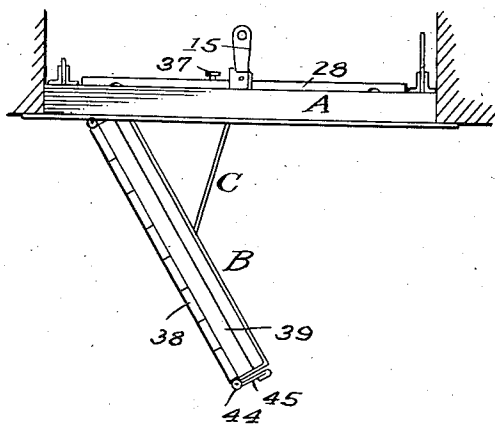


Fig. 5.

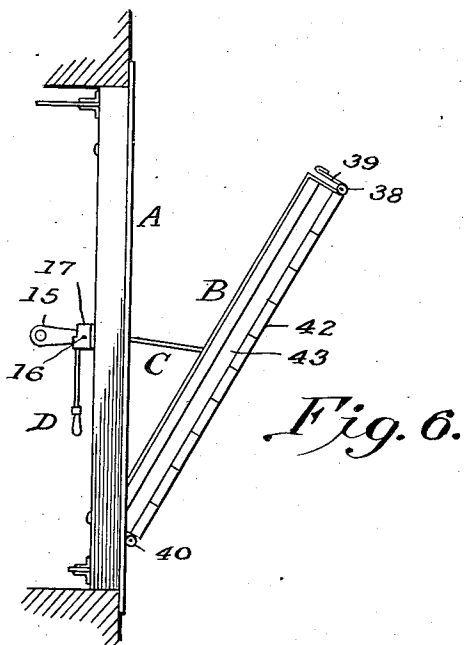
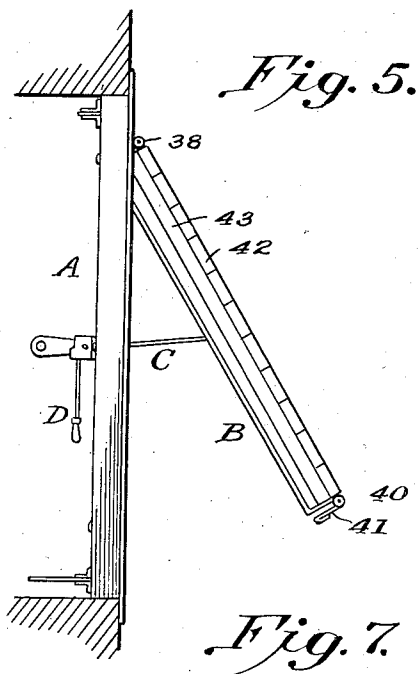
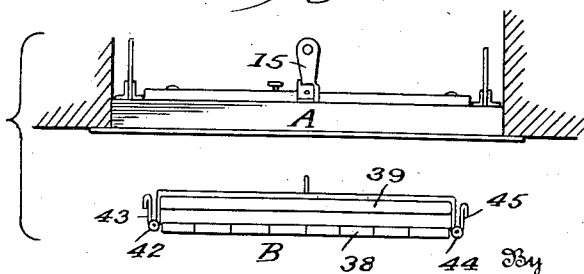


Fig. 7.



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4 Sheets-Sheet 3

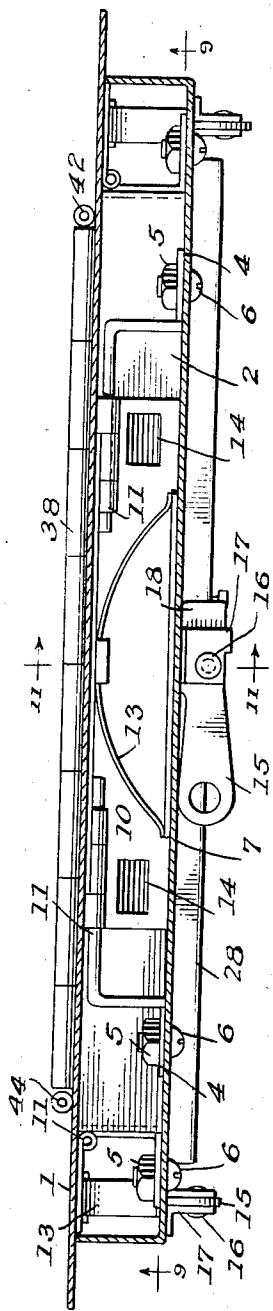


Fig. 8.

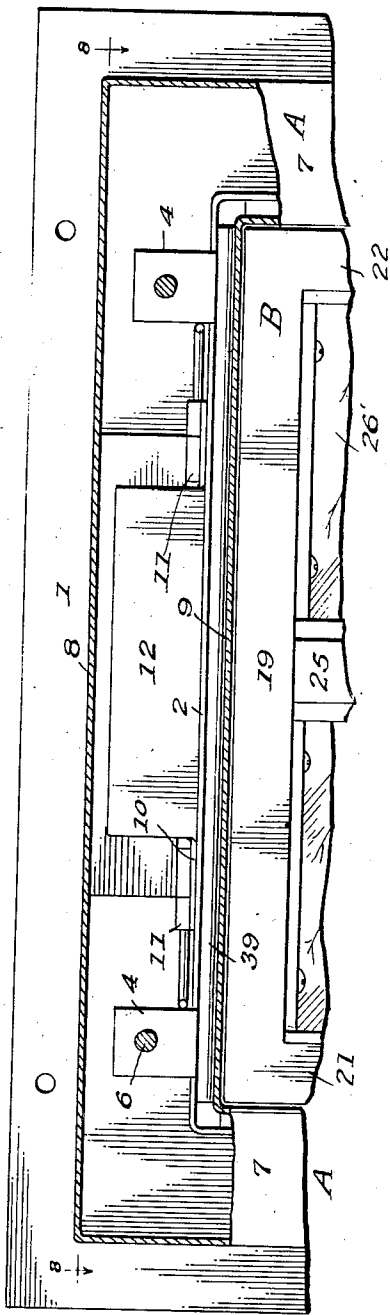


Fig. 9.

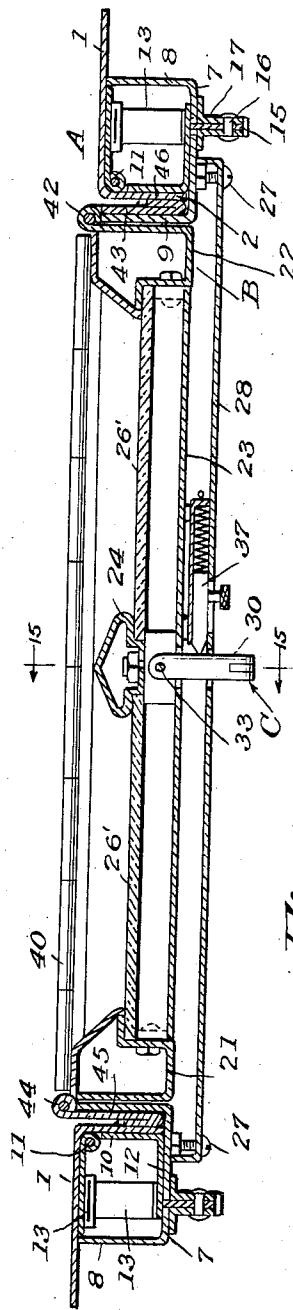


Fig. 10.

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Fig. 11.

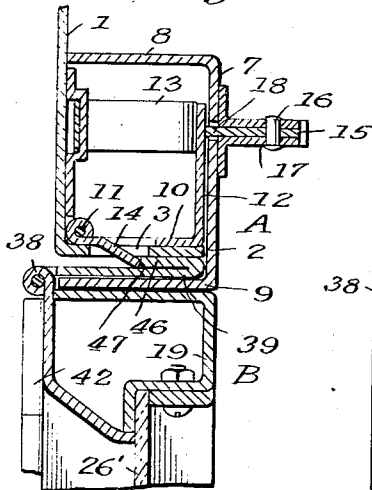


Fig. 12.

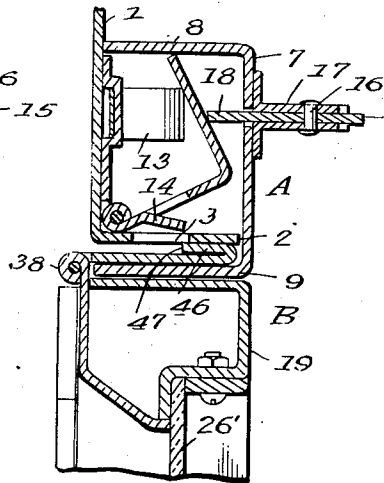


Fig. 13.

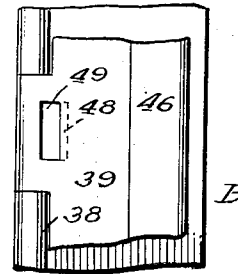
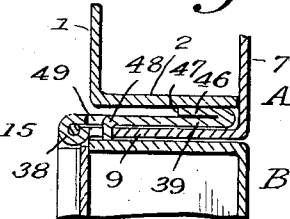


Fig. 14.

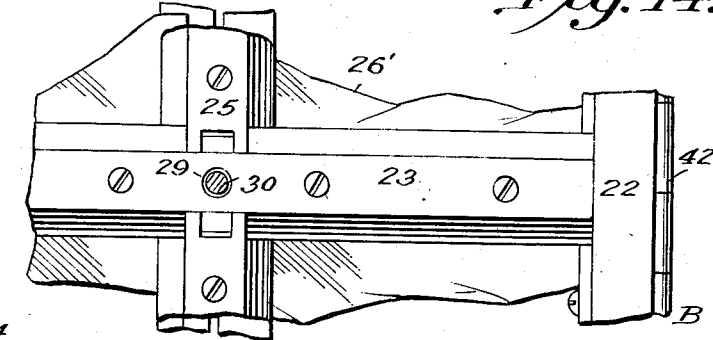
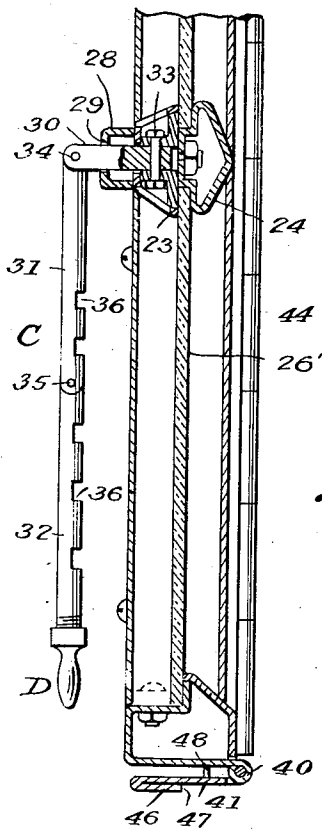


Fig. 16.

Fig. 15.

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UNITED STATES PATENT OFFICE

2,040,332

WINDOW

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Application September 14, 1935, Serial No. 40,632

15 Claims. (Cl. 189—66)

My invention relates to new and useful im-
provements in a window and more particularly
to a casement window, the primary object of the
invention residing in the provision of a novel
5 arrangement or construction whereby a window
sash may be mounted in a frame so that the sash
may be swung from its top, from its bottom, from
either side, or removed entirely from the frame.
While, in the drawings, I have illustrated both
10 the frame and sash as being constructed of metal
it will be understood that other materials might
be used if found desirable.

Another object of the invention resides in the
provision of a novel hinge construction for con-
15 necting the window sash in its associated frame,
and means cooperating with said hinge construc-
tion for locking the sash against movement with-
in the frame or permitting swinging movement of
the sash relative to the frame, said hinge con-
20 struction acting as weather stripping to prevent
leakage between the sash and frame.

A further object of the invention resides in the
provision of a plurality of latch or lock members
positioned around the window frame in spaced
25 relation and adapted to normally engage cooper-
ating parts of the window sash to normally hold
the sash in closed position within the frame, all
of said latch or lock members being adapted to
be released to permit bodily removal of the sash
30 from its frame or certain of the latch or lock mem-
bers being adapted to be released to permit swing-
ing of the sash relative to the frame.

A still further object of the invention consists
in the provision of novel means for holding the
35 sash in its swung or adjusted positions relative to
the frame.

With the above and other objects in view, which
will appear as the description proceeds, my in-
vention consists in the novel details of construc-
40 tion and arrangement of parts, described in the
following specification and illustrated in the ac-
companying drawings, and while I have illustrated
and described the preferred embodiments of the
invention, as they now appear to me, it will be
45 understood that such changes may be made as
will fall within the scope of the appended claims.

In the drawings:—

Fig. 1 is an inside face view of my improved
window sash and frame.

50 Fig. 2 is an outside face view of my improved
window sash and frame.

Figs. 3 and 4 are top plan views of my improved
window sash and frame showing the sash swung
from opposite sides of the frame.

55 Figs. 5 and 6 are side elevations of my im-

proved window sash and frame, Fig. 5 showing
the sash swung outwardly from the top of the
frame while Fig. 6 shows the sash swung out-
wardly from the bottom of the frame.

Fig. 7 is a composite top plan of my improved
window sash and frame showing the sash bodily
removed from the frame.

Fig. 8 is a horizontal section on the line 8—8
of Fig. 9 looking in the direction of the arrows.

Fig. 9 is a fragmental vertical section on the
10 line 9—9 of Fig. 8 looking in the direction of the
arrows.

Fig. 10 is a horizontal section on the line 10—10
of Fig. 1 looking in the direction of the arrows.

Fig. 11 is a fragmental vertical section on the
15 line 11—11 of Fig. 8 looking in the direction of
the arrows.

Fig. 12 is a view similar to Fig. 11 with the latch
or locking member of the frame released from
the cooperating portion or member of the sash.

Fig. 13 is a fragmental section showing details
of the hinge connection between the window sash
and frame.

Fig. 14 is a fragmental section showing in top
plan the portion of the hinge connection, shown
25 in Fig. 13, carried by the window sash.

Fig. 15 is a fragmental section through a por-
tion of the window sash with parts shown in ele-
vation; and

Fig. 16 is a fragmental detail, parts in section,
30 showing a portion of the inner face of the sash.

In my improved form of window I employ a
frame indicated generally at A and a sash indi-
cated generally at B. As previously stated, in
the drawings I have illustrated my window as
35 formed of metal and while this is the preferable
construction it will nevertheless be understood
that other materials might be used where found
desirable or advantageous.

The frame A includes a plate 1 having around
40 its inner edge a forwardly or inwardly directed
flange 2, said flange having circumferentially
spaced openings indicated at 3 for a purpose
which will be later brought out. Struck from
the flange 2 are a plurality of outwardly directed
45 lugs or projections 4 which extend parallel with
the plate 1 and each of these lugs or projections
is formed with an opening registering with a
threaded opening of a nut 5, the nuts 5 being
50 spot-welded to the under surfaces of the said
lugs or projections. Secured to the plate 1, by
means of screws 6 or other suitable fastenings,
which engage the nuts 5, is a housing member
indicated generally at 7 which is of channel for-
mation and having the flanges 8 and 9. As 55

shown more particularly in Figs. 11 and 12 of the drawings, the outer edge of the flange 8 engages the surface of the plate 1 while the flange 9 extends parallel with the flange 2 and is spaced therefrom for a purpose which will be later apparent. Pivotally mounted within the housing 7 are a plurality of latch or lock members for holding the window sash within its frame and in the drawings I have illustrated four of these latch or lock members, one being positioned at the top of the frame, one being positioned at the bottom of the frame, and one at each side of the frame. Each of these latch or lock members includes a plate 10 pivotally connected at the juncture of the plate 1 and its flange 2 as shown at 11 and each of the plates has an outwardly directed flange or arm 12 adapted to be engaged by a spring 13 secured to the plate 1 as shown more particularly in Figs. 11 and 12 of the drawings. The springs 13, indicated as leaf springs, normally hold the plates 10, of the latch or lock members, in engagement with the flange 2 of the plate 1 and struck from each of the plates 10 is a pair of fingers 14 which normally extend through the openings 3 of the flange 2 as shown more particularly in Fig. 11 of the drawings. For operating the latch or lock members I provide the four levers indicated at 15, these levers 15 being pivotally connected at 16 to standards 17 secured to the outer face of the housing 7. Normally the levers 15 extend parallel with the face of the housing 7 as shown more particularly in Fig. 1 of the drawings, but when these levers are raised to project outwardly the ends 18 thereof will force the flange or arm 12 inwardly as shown more particularly in Fig. 12 of the drawings, against the action of the spring 13, to swing the latch or lock member on its pivot 11 and draw the fingers or projections 14 through the openings 3 into the unlatched or unlocked position shown in Fig. 12 of the drawings.

My improved form of sash B includes the top portion 19, bottom portion 20 and side portions 21 and 22 with transverse reinforcing members 23 and 24 and vertical reinforcing members 25 and 26 forming spaces to receive the glass plates 26'. It will be understood that the reinforcing members 23 and 25 are positioned across the inner face of the sash while the reinforcing members 24 and 26 are positioned over the outer face of the sash.

The sash B is normally positioned within the opening of the frame A as shown more particularly in Figs. 1 and 2 of the drawings and secured to the inner face of the frame A, by means of the screws 27 or other suitable fastenings, is a transversely extending bar 28 extending over the inner face of the sash. This bar 28 is provided, intermediate its ends, with an opening 29, shown more particularly in Fig. 15 of the drawings, through which operates a rod indicated generally at C having the handle portion D. The rod C includes the sections 30, 31 and 32, the section 30 being pivotally connected at 33 to the reinforcing member 23 as shown more particularly in Fig. 15 for lateral swinging movement, the section 31 is pivotally connected to the section 30 at 34, and the section 32 is pivotally connected to the section 31 at 35. Each of the sections 31 and 32 is provided with notches 36 adapted to be engaged by a spring pressed bolt 37, shown more particularly in Fig. 10 of the drawings, for holding the sash B in adjusted positions as will be later brought out.

Pivotally connected at 38 to the top 19 of the sash is a plate 39, pivotally connected at 40 to the bottom 20 of the sash is a plate 41, pivotally connected at 42 to the side 22 of the sash is a plate 43 and pivotally connected at 44 to the side 21 of the sash is a plate 45. These plates 39, 41, 43 and 45 form hinge connections for connecting the sash B to the frame A and each of the plates has its outer free edge turned inwardly as shown at 46 to form a shoulder 47, this being more particularly illustrated in Figs. 11, 12 and 13 of the drawings. Each of the plates also has struck therefrom a downwardly extending projection 48 which will normally extend through an opening 49 in the arm 9 of the housing 7 as shown more particularly in Fig. 13 of the drawings to engage the edge of the sash and to limit the inward swinging movements of the hinge plates thereby always spacing the hinge plates from the edges of the sash a sufficient distance to receive the arm 9 20 as shown in the drawings.

From the above it is thought that the detailed construction of the frame A and sash B will be clearly understood. Normally the sash will be positioned within the opening of the frame as shown more particularly in Figs. 1, 2, 11, 12 and 13 of the drawings and when so positioned the plates 39, 41, 43 and 45 will be positioned as shown between the flange 2 of the plate 1 and the arm 9 of the housing 7 with the fingers 14 of the latch or lock members engaging the shoulders 47. When the parts are thus positioned the sash is locked within the frame. As previously stated, the plates 39, 41, 43 and 45 act as hinges or hinge connections for connecting the sash to the frame and the latch or lock members may be operated to permit the sash to be swung into the positions shown in Figs. 3, 4, 5 and 6 of the drawings or to be bodily removed from the frame as shown in Fig. 7 of the drawings. Of course, the sash, when swung, projects from the outer face of the window or in other words exteriorly of the building. When it is desired to swing the sash into any of its positions the operator within the room will manipulate such of the latch or lock members as may be desired and when the sash is swung the rod C will operate through the opening 29 of the cross bar 28 and the sliding bolt 37 will be engaged with such notch 36 as may be desired for holding the sash in its adjusted position. It will be seen that due to the pivotal connections 33, 34 and 35 the rod C will have universal swinging movement to assume the positions desired. When it is desired to close the sash the sliding bolt 37 will be disengaged from its associated notch 36 and the rod C may be drawn inwardly to swing the sash. In order to swing the sash it is necessary to manipulate three of the levers 15 and all four of the levers 15 must be manipulated to bodily remove the sash from its frame as shown in Fig. 7 of the drawings. When the levers 15 are manipulated they will operate the latch or lock members. In order to swing the sash into the position shown in Fig. 3 of the drawings the latch or lock members engageable with the plates 39, 41, and 43 are released by manipulation of the levers positioned to operate the same. The operation of the levers, that is swinging them outwardly from their normal parallel position with respect to the frame, causes the inner ends thereof to engage the portions 12 and swing the plates 10 on their pivots 11 thereby withdrawing the fingers 14 from engagement with the shoulders 47. When thus disengaged the plate 45 acts as a hinge and the sash may be swung into the

position shown in Fig. 3. When it is desired to swing the sash into the position shown in Fig. 4 the latch or lock members, engageable with the plates 39, 41 and 45 are released and the plate 43 acts as the hinge member. When it is desired to swing the sash from the top as shown in Fig. 5 the latch or lock members are disengaged from the plates 41, 43 and 45 and the plate 39 acts as the hinge member. When it is desired to swing the sash from the bottom, as shown in Fig. 6, the latch or lock members are released from the plates 39, 43 and 45 and the plate 41 acts as the hinge member. When it is desired to bodily remove the sash, as shown in Fig. 7, the latch or lock members are released from all of the plates 39, 41, 43 and 45 and the rod C may be withdrawn entirely through the opening 29 of the transverse bar 28 by removing the handle portion D which is threaded to the bar. It will be noted that the projections 48, struck from the plates 39, 41, 43 and 45 limit the inward movement of the plates with respect to the sash and always hold the plates in proper position to receive the arm 9 of the casing or housing 7 when the sash is swung back into closed position.

From the above it will be seen, and I wish to lay particular stress on the fact, that the sash is adapted for what might be termed universal swinging movement or in other words may be swung from its top edge, its bottom edge, or from either side edge. At the same time the sash may be bodily removed from the frame. I also have particular advantage in so forming the frame and sash that associated and co-related parts act as weather strips to prevent leakage between the sash and frame.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A window including a frame having an opening, a sash for closing the opening, and means for connecting the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash.
2. A window including a frame having an opening, a sash for closing the opening, and hinge connections between the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash.
3. A window including a frame having an opening, a sash for closing the opening, means connecting the sash and frame permitting swinging of the sash relative to the frame, from all edges of the sash, and means for holding the sash in its swung positions.
4. A window including a frame having an opening, a sash for closing the opening, hinge connections between the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash, and means for holding the sash in its swung positions.
5. A window including a frame having an opening, a sash for closing the opening, means connecting the sash and frame permitting swinging movement of the sash relative to the frame, from all edges of the sash, and means for locking the sash in the frame.
6. A window including a frame having an opening, a sash for closing the opening, hinge connections between the sash and frame permitting swinging of the sash relative to the frame, from

all edges of the sash, and means for locking the sash in the frame.

7. A window including a frame having an opening, a sash for closing the opening, means for locking the sash in the frame, means connecting the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash, and means for holding the sash in its swung positions.

8. A window including a frame having an opening, a sash for closing the opening, means for locking the sash in the frame, hinge connections between the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash, and means for holding the sash in its swung positions.

9. A window including a frame having an opening, a sash for closing the opening, and means connecting the sash and frame permitting swinging of the sash relative to the frame, from all edges of the sash, and forming weather stripping between the frame and sash.

10. A window including a frame having an opening, a sash for closing the opening, and means connecting the sash and frame permitting swinging of the sash, relative to the frame, from all edges of the sash, and permitting bodily removal of the sash from the frame.

11. A window including a frame having an opening and an arm forming a recessed portion, a sash for closing the opening, and hinged members carried by the sash, received in the recessed portion of the frame and engaging the arm thereof, said hinged members permitting swinging movement of the sash relative to the frame.

12. A window including a frame having an opening and an arm forming a recessed portion, a sash for closing the opening, hinged members carried by the sash, received in the recessed portion of the frame and engaging the arm thereof, said hinged members permitting swinging movement of the sash relative to the frame, and means carried by the frame and engageable with the hinged members for locking the sash within the frame.

13. A window including a frame having an opening, a sash for closing the opening, a hinged member connected to each edge of the sash and engageable with the frame, means engageable with the hinged members for locking the sash within the frame, and means for selectively releasing the locking means to permit swinging movement of the sash from selected edge portions thereof.

14. A window including a frame having an opening, a sash for closing the opening, means connecting the sash and frame permitting swinging movement of the sash relative to the frame, from all edge portions of the sash, and a rod operable for holding the sash in its swung positions, said rod being connected to the sash for swinging movement.

15. A window including a frame having an opening, a sash for closing the opening, means connecting the sash and frame permitting swinging movement of the sash relative to the frame, from all edge portions of the sash, and a sectional rod operable for holding the sash in its swung positions, said rod being connected to the sash for swinging movement, and the sections being pivotally connected together.

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