Feb. 12, 1952 B. HANSEN 2,585,118

VEHICLE WINDOW

Filed March 18, 1949 2 SHEETS—SHEET 1

Fig. 1.

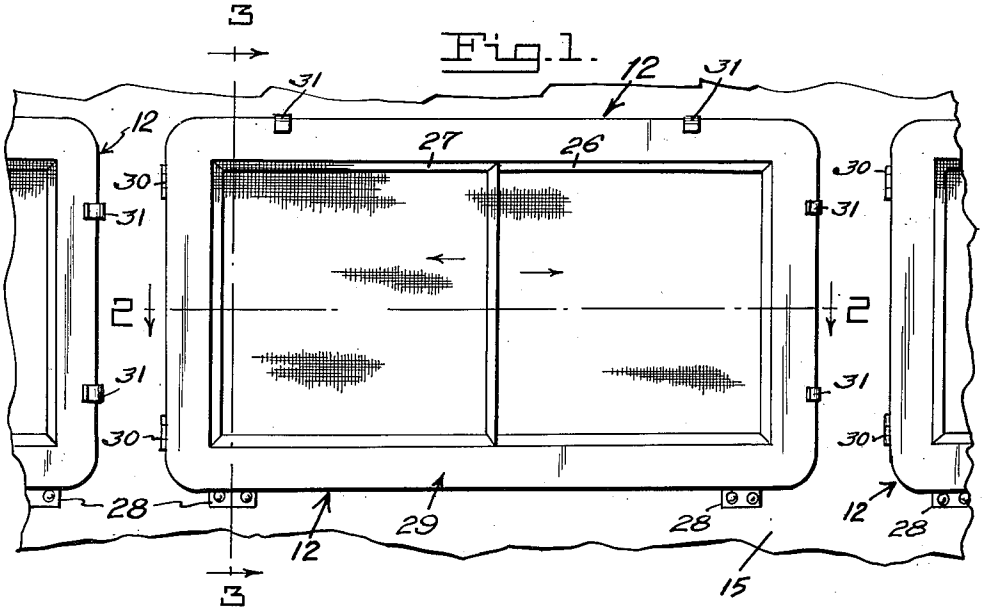



Fig. 2.

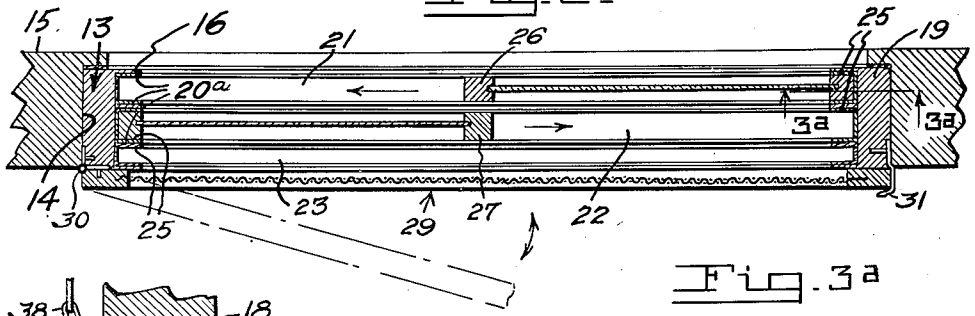



Fig. 3.

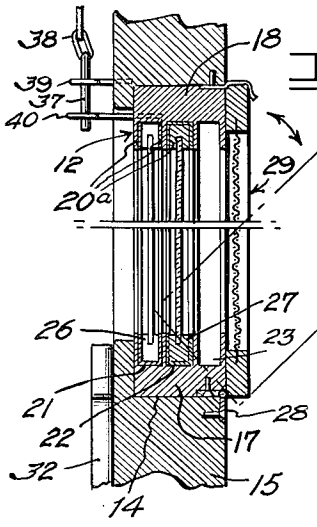



Fig. 3a

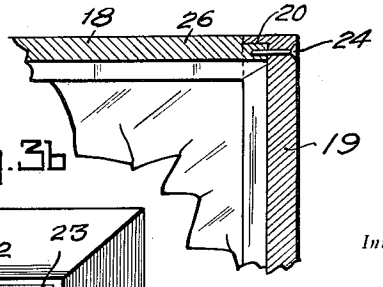
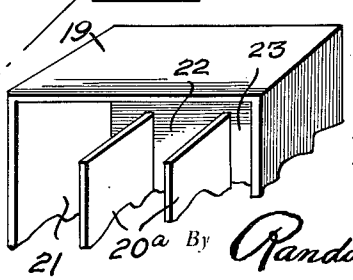



Fig. 3b




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Fig. 4.

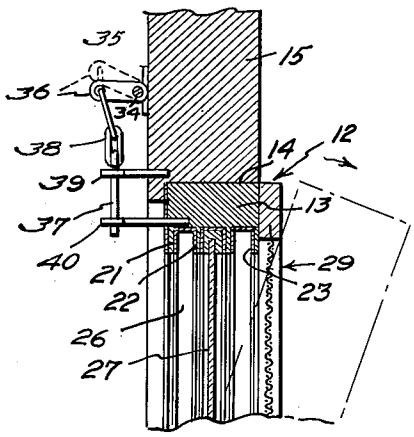



Fig. 5.

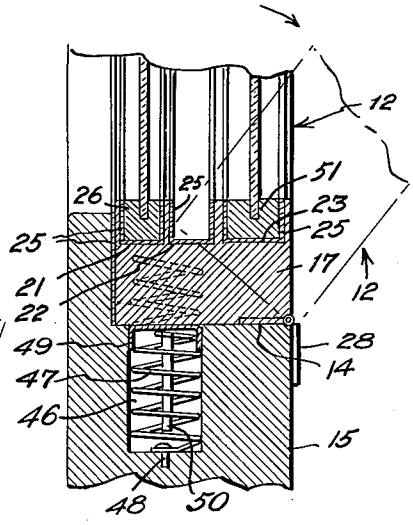
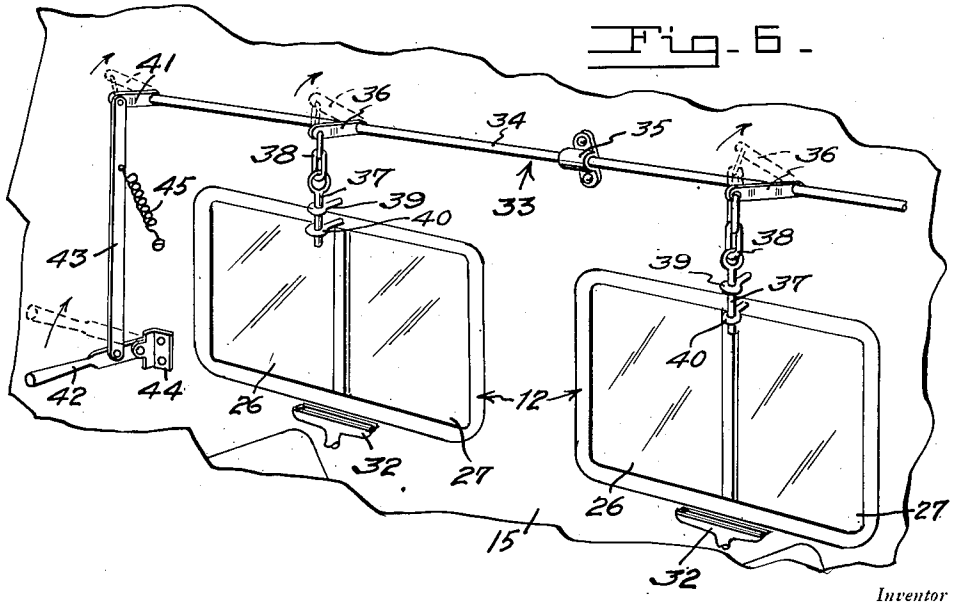



Fig. 6.




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# UNITED STATES PATENT OFFICE

2,585,118

## VEHICLE WINDOW

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Original application July 10, 1946, Serial No. 682,661. Divided and this application March 18, 1949, Serial No. 82,213

2 Claims. (Cl. 20—45)

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This invention relates to a novel construction of vehicle window particularly adapted for use in busses and more particularly has reference to a window including a frame containing slidably mounted sashes and which is hingedly supported to permit the frame, together with the sashes, to be swung outwardly of an opening in the vehicle body in which said frame is normally mounted.

This application constitutes a division of my prior copending application entitled Window, filed July 10, 1946, and bearing Serial No. 682,661, now abandoned.

A primary object of the present invention is to provide an improved construction of window capable of being readily mounted for swinging movement in a window opening of a vehicle to permit the frame and sashes to be swung to open position to facilitate the washing of both sides of the sash panes.

Another object of the invention is to provide a window which is especially adapted for use in busses, particularly school busses, and by means of which the frames and sashes carried thereby may be swung to open positions to facilitate escape of occupants from the vehicle through the window openings.

Still another object of the invention is to provide a vehicle window capable of being equipped with a window screen which is so mounted thereon that the screen cannot be moved to an open position from within the vehicle and while the window frame is disposed in its opening to thereby function as a guard to prevent any part of the body of an occupant protruding outwardly from the outer surface of the vehicle body through the open window.

Still another object of the invention is to provide an emergency means for simultaneously releasing a plurality of the vehicle windows for automatic movement to open positions and to afford emergency exits and which is under the control of the operator of the vehicle whereby the windows are normally maintained so that access to or egress from the vehicle will not be possible therethrough or through the opening thereof formed in the vehicle body.

Numerous other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, which illustrate a preferred embodiment thereof, and wherein:

Figure 1 is a side elevational view looking toward the outer side of a window adapted for use in busses or other vehicles;

Figure 2 is a horizontal sectional view thereof

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taken substantially along a plane as indicated by the line 2—2 of Figure 1;

Figure 3 is a transverse vertical sectional view taken substantially along a plane as indicated by the line 3—3 of Figure 1;

Figure 3*a* is a fragmentary longitudinal sectional view taken substantially along a plane as indicated by the line 3*a*—3*a* of Figure 2;

Figure 3*b* is a fragmentary perspective view of a portion of the window frame;

Figure 4 is a fragmentary vertical sectional view of a part of the window;

Figure 5 is a similar view of another part thereof, and

Figure 6 is a perspective view looking toward the inner side of two of the bus windows and the adjacent portion of the vehicle body.

Referring more specifically to the drawings, the numeral 12 designates the improved window in its entirety which is adapted for use in busses and other vehicles, particularly school busses.

The window 12 includes an elongated rectangular frame 13 which is adapted to be mounted in a horizontal position in a horizontally elongated opening 14 of a side wall 15 of a bus or other vehicle. The frame 13 includes an end rail 16 which is disposed normally in a vertical plane and which is fixedly connected to corresponding ends of a horizontally disposed bottom rail 17 and top rail 18. The opposite ends of the bottom and top rails 17 and 18 are received in portions of a detachable opposite end rail 19, and said rails 17 and 18 are externally recessed at 20 to fit into the end rail 19 so that the adjacent external portions will be disposed in flush engagement, as seen in Figure 3*a*. As seen in Figures 2 and 3, the end rail 16, said rails 17 and 18 and detachable end rail 19 are provided with aligned inwardly projecting ribs 20*a* which combine to form three inwardly opening grooves 21, 22 and 23, for a purpose which will hereinafter become apparent. The ribs 20*a* of the detachable end rail 19 function to locate the last mentioned ends of the bottom and top rails 17 and 18 in the bottom and top portions of the rail 19 and said parts are detachably connected by fastenings 24 (Figure 3*a*) for retaining the end rail 19 in applied position.

As seen in Figure 2, the guide channels 21, 22 and 23 are preferably lined with felt strips 25 and the inner channel 21 is adapted to slidably support a window sash 26. The intermediate channel 22 slidably supports a window sash 27; said sashes 26 and 27 each being of a length to fill half of the opening of the window frame 13 and being

arranged for horizontal sliding movement, so that one-half of the frame opening may be exposed by moving either of the sashes to the opposite end of its guide channel or portions of the frame may be exposed at each end of the opening by moving the two sashes 26 and 27 to midway positions of their channels 21 and 22, respectively. The outer channel 23 is only intended for use under cold weather conditions and is adapted to contain a storm window 51, which may be readily detachably mounted therein by the simple expediency of removing the end rail 19 and slidably inserting a storm sash after which the end rail 19 is reapplied for securely maintaining the storm sash in position during the period of the year when this additional protection against the cold is necessary or desirable.

As best seen in Figure 3, the window 12 is hingedly supported in the window opening 14 by leaf hinges 28, each of which has one leaf secured to the wall 15 on the outer side thereof and directly beneath the opening 14 and the other leaf thereof secured to the underside of the bottom rail 17, which leaves of hinges 28 are preferably countersunk in the wall 15 and rail 17, as seen in Figure 3. It will thus be readily apparent that the window 12 including the frame 13 and the sashes carried thereby may be swung outwardly and downwardly on the hinges 28 to entirely expose the window opening 14.

The window 12 also includes a window screen 29, the frame of which bears against the outer side of the window frame 13 and is swingably connected thereto at one end thereof by leaf hinges 30 so that the window screen 29 may be swung to an open position on a vertical axis as compared to the swinging movement of the window in its entirety on a horizontal axis. The screen 29 is retained in position against the outer side of the frame 13 by spring clips 31 which are secured to the end rail 19 and at the opposite end by the hinges 30 and by additional clips 31, as seen in Figure 3, which are secured to the top rail 18 and engage over the upper edge of the frame of the screen 29. The spring clips 31 are preferably recessed in the rails 18 and 19.

From the foregoing it will be readily apparent that the window 12 equipped with either a storm window or the screen 29 may be swung outwardly and downwardly, as indicated in dotted lines in Figure 3, for entirely exposing the window opening 14, so that said opening may be used as an emergency exit for occupants of the vehicle and so that the windows may be moved to partially open positions with the frames 12 projecting horizontally outward and with the screen 29 swung away from the window frame 13 to permit both sides of the panes of the window sashes 26 and 27 to be washed from a position externally of the vehicle.

The windows 12 may be provided with defrosters 32 located on the inner side of the wall 15 and arranged to open toward the panes of the sashes 26 and 27, as seen in Figure 3.

To facilitate the use of the window openings as emergency exists for school busses, the mechanism as shown in Figure 6 and designated generally 33 may be provided for releasing all of the windows 12 simultaneously at the will of the bus driver and from a position adjacent the operator's seat of the bus. The mechanism 33 includes a shaft 34 journaled in bearings 35 above the windows 12 of each side of the bus and on the interior thereof. The shaft 34 is provided with a crank arm 36 which projects outwardly above each window 12 and which supports a pin 37 which is connected to each crank arm 36 by two or more links 38. Each pin 37 extends through two eye-bolts 39 and 40. The eye-bolt 39 is secured to and projects from the inner side of the upper rail 18 so that when the pin 37 extends through the vertically aligned eyes of the bolts 39 and 40, the window 12 associated therewith will be retained in a closed position. A crank 41 projects outwardly from the forward end of the shaft 34 and is connected to the intermediate portion of a manually operated lever 42 by a rigid connecting rod 43. The lever 42 is pivotally mounted at its inner end on a bracket 44 mounted on the vehicle wall 15 and the outer end of the lever 42 forms a handle which is located convenient to the bus operator, while seated in the operator's seat. It will thus be readily apparent that an upward movement of the lever 42 will cause the shaft 34 to be turned for raising all of the pins 37 out of engagement with the eye-bolts 40 to permit the windows 12 to be swung outwardly to fully open position. A spring 45 is anchored to the inner side of the vehicle wall 15 and is connected thereabove to the link 43 for normally retaining the parts so that the pins 37 will engage the superimposed eye-bolts 40 and 39.

To positively insure opening of the windows 12 upon release thereof by the bus operator, as just previously described, the vehicle wall 15 may be provided with wells 46 which open into the bottom portions of the window openings 14, as seen in Figure 5. The wells 46 preferably contain expansion coil springs 47, the lower ends of which are anchored in the beds thereof by fastenings 48 and the upper ends of which bear against inverted cup-shaped members 49 which are reciprocally disposed in the wells 46 and which are urged outwardly thereof and against the bottom rails 17 by the springs 47. The members 49 may be provided with stems 50 which extend axially through portions of the springs 47 to prevent the springs from becoming twisted when expanded. It will thus be readily apparent that the springs 47 and members 50 will forcibly eject the windows 12 from the openings 14 automatically when the pins 37 are released from eye-bolts 40 to thereby insure the exposing of the openings 14 to afford emergency exits. A storm window or sash 51 is shown positioned in the guide groove 23 of the window 12 in Figure 5.

A connection of the latch pins 37 to the crank arms 36 by the links 38 is provided so that the individual latch pins 37 can be manually moved upwardly for individually releasing the windows 12 without operation of the lever 42 to release all of the windows 12 simultaneously.

Various modifications and changes are contemplated and may obviously be resorted to without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A window comprising a window frame mounted in an opening of a wall and hingedly connected to the wall for swinging movement to an open position out of engagement with the wall opening, said frame being provided with inwardly opening channels forming guideways, a plurality of window sashes slidably mounted in the guideways and moveable to positions to close or partially close the opening of the window frame while said frame is mounted in the wall opening, one end rail of said frame being detachable for applying and removing said sashes,

when the window frame is out of engagement with the wall opening, latch means for detachably retaining the window frame in engagement with said wall opening, said window frame being hingedly connected along its bottom rail to said wall and being disposed with its longitudinal axis in a horizontal plane and with the sashes thereof arranged for sliding movement in a horizontal direction and parallel to the axis on which the window frame is hinged, said window being hingedly mounted to swing outwardly and downwardly of the wall opening, and operating means disposed on the inner side of said wall and remote to the window for releasing the latch means of the window to permit it to be swung outwardly and downwardly to an open position.

2. A window comprising a window frame mounted in an opening of a wall and hingedly connected to the wall for swinging movement to an open position out of engagement with the wall opening, said frame being provided with inwardly opening channels forming guideways, a plurality of window sashes slidably mounted in the guideways and moveable to positions to close or partially close the opening of the window frame while said frame is mounted in the wall opening, one end rail of said frame being detachable for applying and removing said sashes, when the window frame is out of engagement with the wall opening, latch means for detachably retaining the window frame in engagement with said wall opening, said window frame being hingedly connected along its bottom rail to said wall and being disposed with its longitudinal axis in a horizontal plane and with the sashes thereof arranged for sliding movement in a horizontal direction, said window being hingedly mounted to swing outwardly and downwardly, operating means disposed on the inner side of said wall and remote to the window for releasing the latch means thereof to permit said window to swing outwardly and downwardly to an open position, and spring actuated means bearing against the lower rail of the window for urging the window to open position when the latch means thereof is released.



BRUNO HANSEN.


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