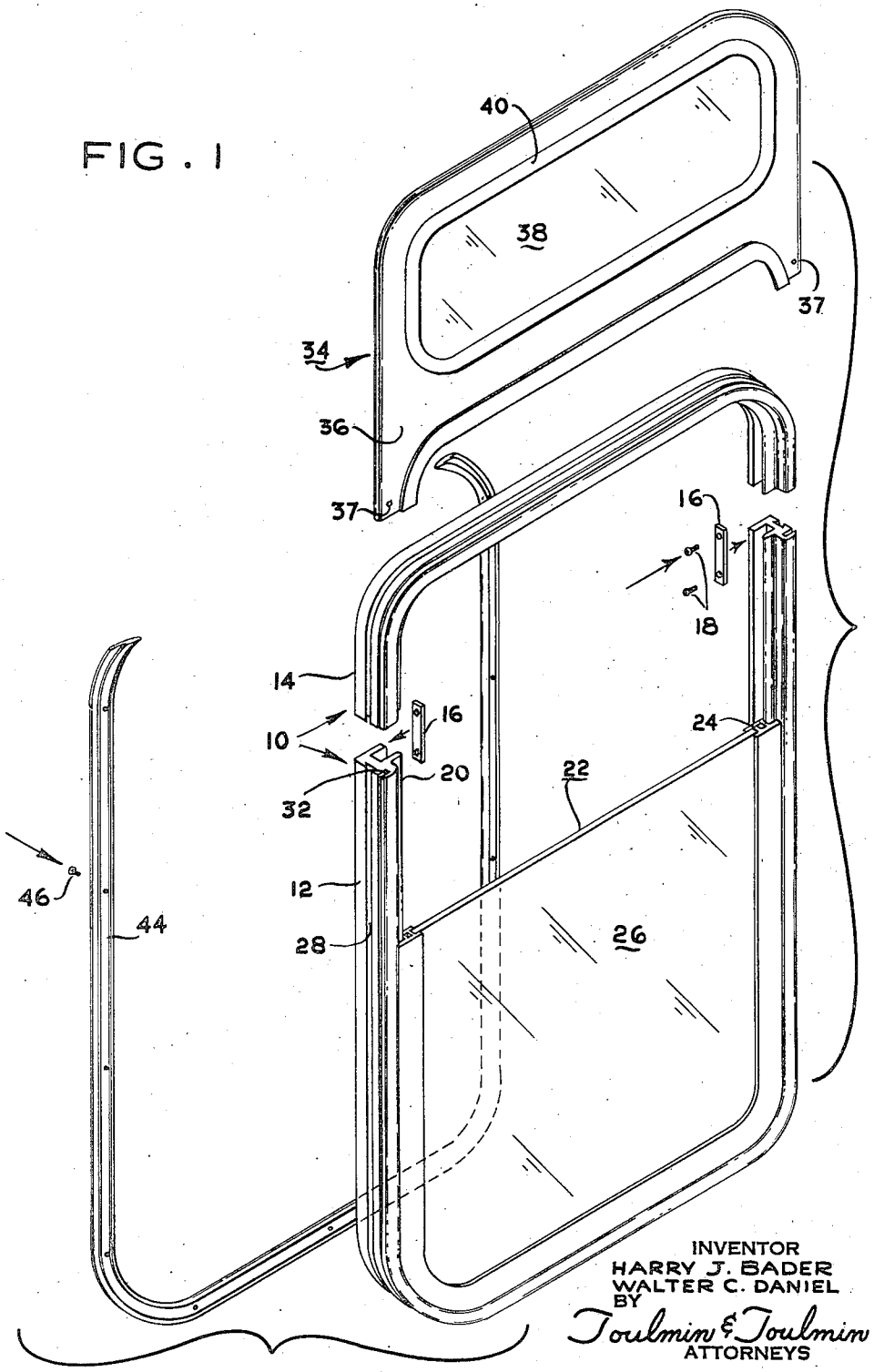
Dec. 7, 1948. H. J. BADER ET AL 2,455,462

WINDOW CONSTRUCTION

Filed Dec. 26, 1946 4 Sheets-Sheet 1

FIG. 1



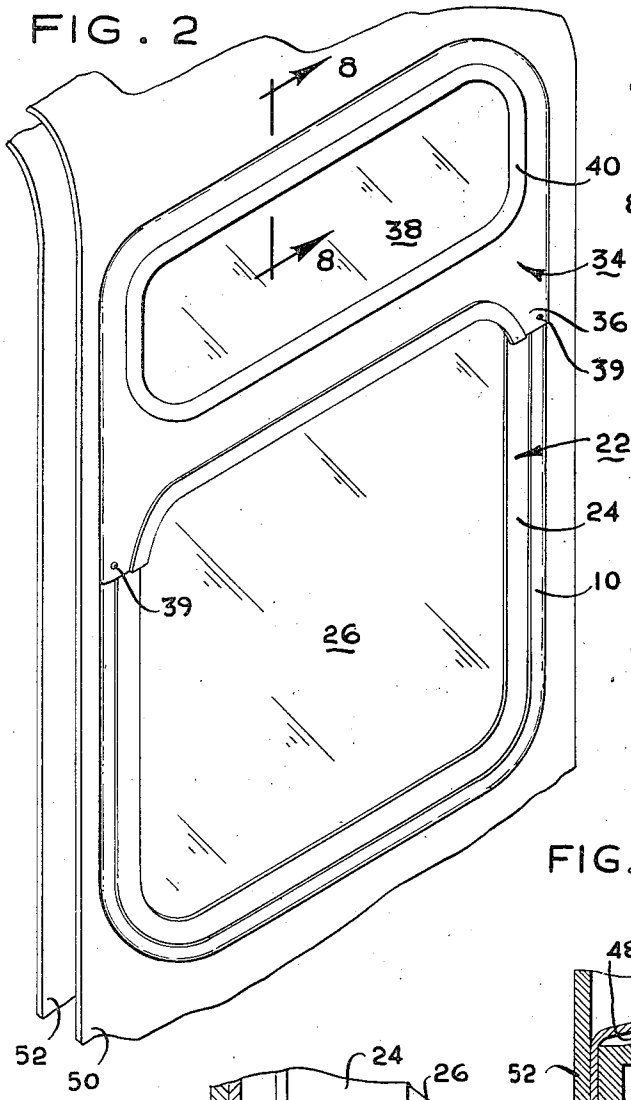
INVENTOR
HARRY J. BADER
WALTER C. DANIEL
BY
Toulmin & Toulmin
ATTORNEYS

Dec. 7, 1948. H. J. BADER ET AL 2,455,462

WINDOW CONSTRUCTION

Filed Dec. 26, 1946 4 Sheets-Sheet 2

FIG. 2



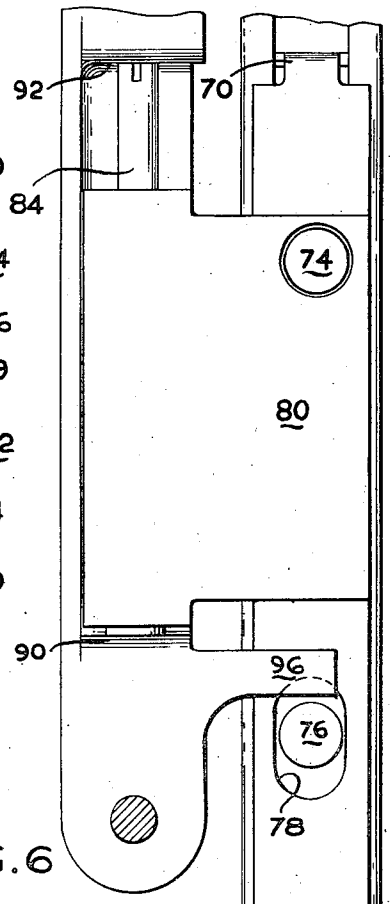


FIG. 6

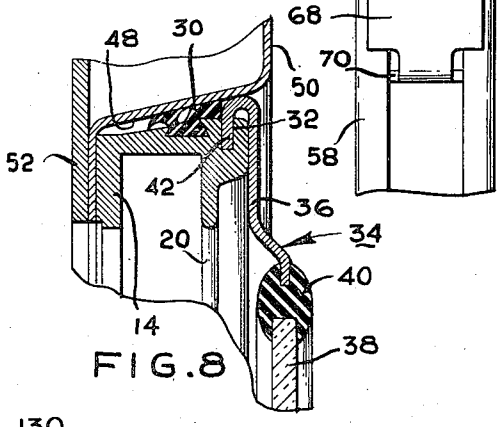


FIG. 8

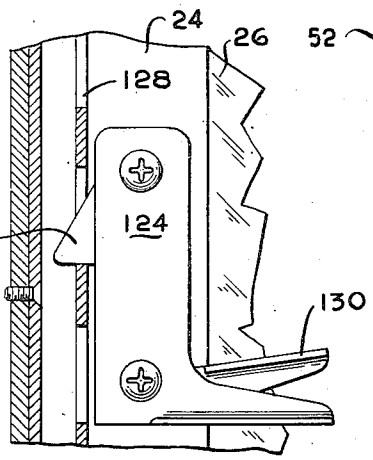


FIG. 10

INVENTOR
HARRY J. BADER
WALTER C. DANIEL
BY
Toulmin & Toulmin
ATTORNEYS

Dec. 7, 1948. H. J. BADER ET AL 2,455,462

WINDOW CONSTRUCTION

Filed Dec. 26, 1946 4 Sheets-Sheet 3

FIG. 3

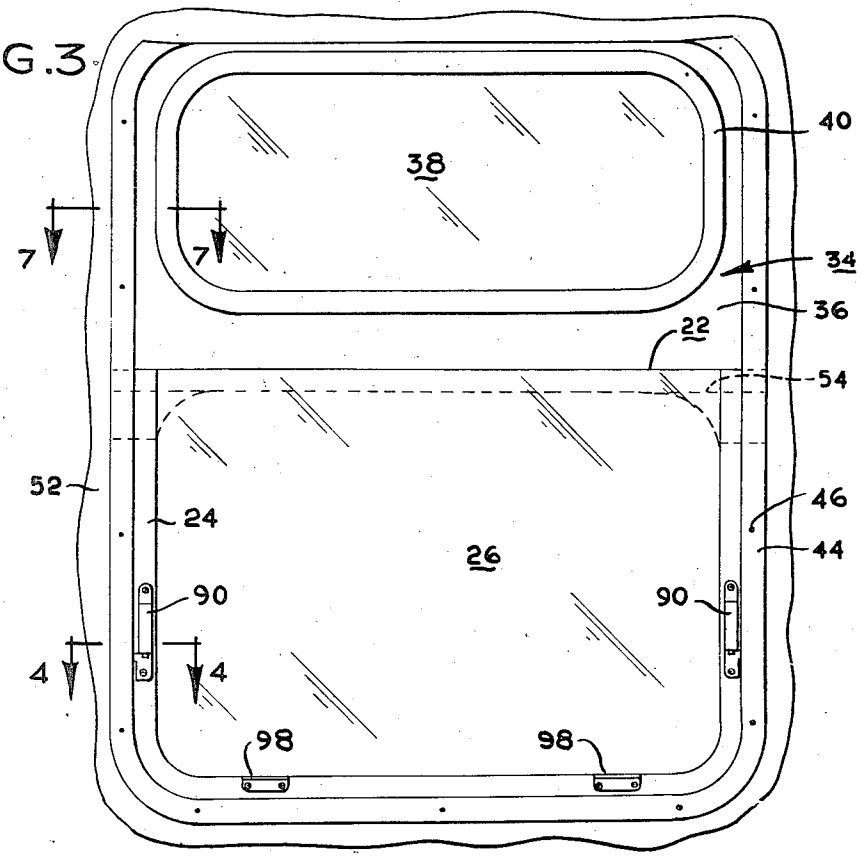
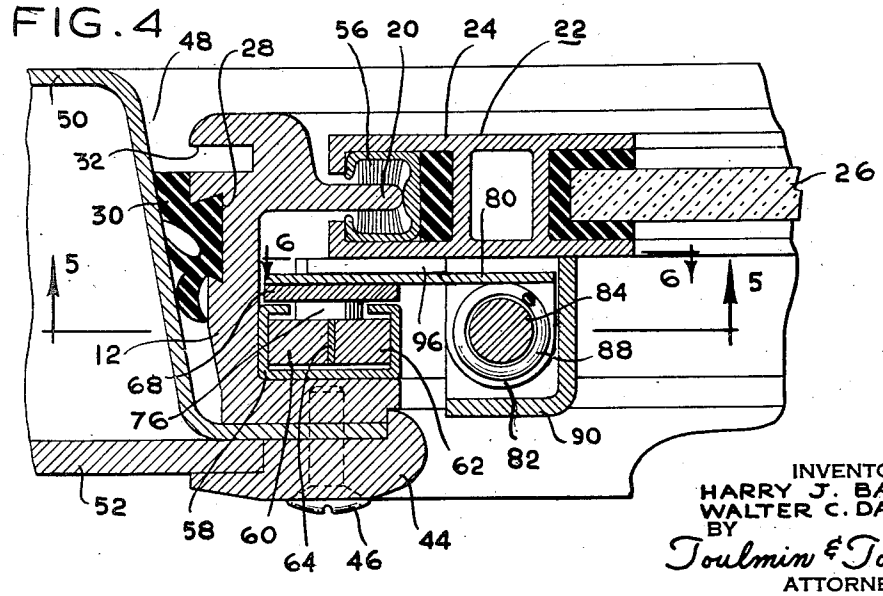


FIG. 4



INVENTOR
HARRY J. BADER
WALTER C. DANIEL
BY
Toulmin & Toulmin
ATTORNEYS

Dec. 7, 1948. H. J. BADER ET AL 2,455,462

WINDOW CONSTRUCTION

Filed Dec. 26, 1946 4 Sheets-Sheet 4

FIG. 5

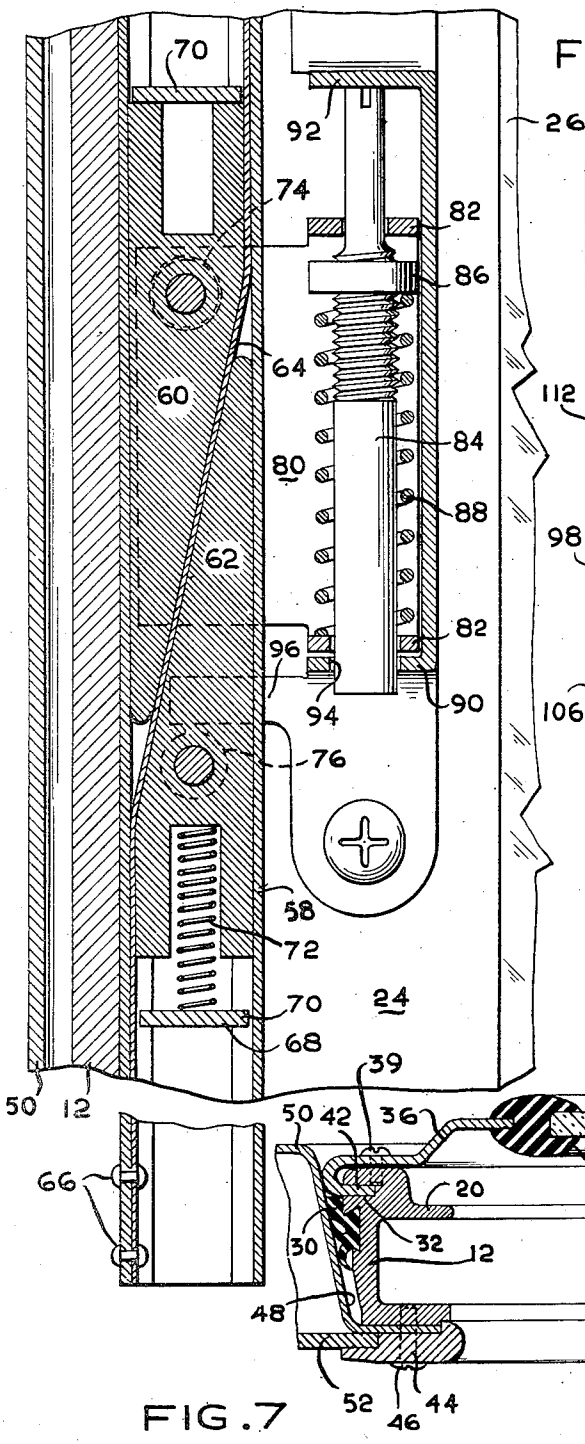
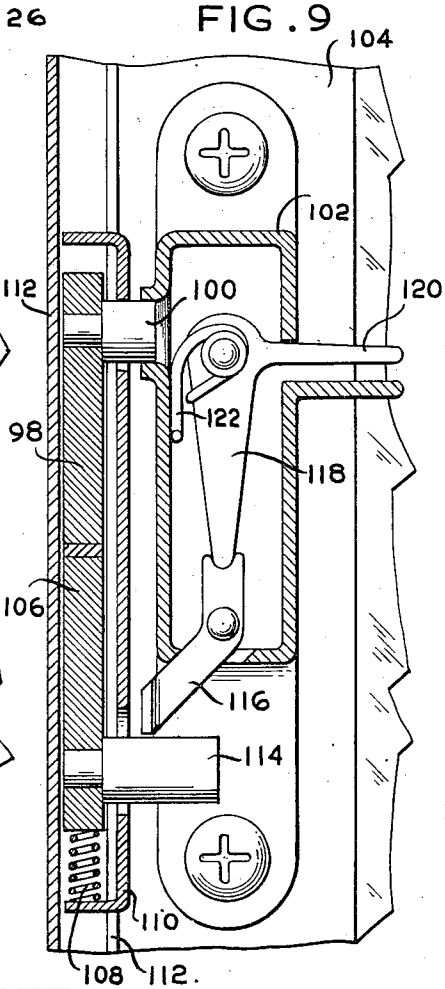


FIG. 7

FIG. 9



INVENTOR
HARRY J. BADER
WALTER C. DANIEL
BY
Toulmin & Toulmin
ATTORNEYS

Patented Dec. 7, 1948

2,455,462

UNITED STATES PATENT OFFICE

2,455,462

WINDOW CONSTRUCTION

Harry J. Bader and Walter C. Daniel, Troy, Ohio, assignors to The Troy Sunshade Company, Troy, Ohio, a corporation of Ohio

Application December 26, 1946, Serial No. 718,328

9 Claims. (Cl. 296—44)

1

This invention relates to windows for vehicles such as buses and coaches and to improved constructions therefor.

In most buses or coaches the window assembly consists of a fixed window in the vehicle wall and a movable window sash carried in a frame which is inserted in the wall when the coach is assembled.

In the present invention the movable window sash is combined with the fixed window and the entire unit mounted in the vehicle wall as a unitary assembly. This eliminates assembling costs and provides for a more inexpensive vehicle structure inasmuch as only a single opening therein is required.

Accordingly, the primary object of the present invention is the provision of an improved window construction for coaches and buses which is inexpensive to manufacture and which is easily mounted in the vehicle window opening.

Still another object is the provision of a vehicle window in which both fixed and movable sash are part of a single assembly to be mounted in the vehicle wall.

Another object is the provision of an improved latching mechanism for the movable sash of the window which is compact and easily operated.

A still further object is the provision of a construction for a vehicle window having both fixed and movable sash therein in which the fixed sash is retained in its assembled position by the periphery of the window opening of the vehicle with which the window is assembled.

These and other objects and advantages will become more apparent upon reference to the following description taken in connection with the accompanying drawings in which:

Figure 1 is a perspective view showing the parts of the window assembly;

Figure 2 is another perspective view showing the window assembled and mounted in the window opening of a vehicle wall;

Figure 3 is a view looking at the window from inside the vehicle;

Figure 4 is a plan section indicated by the line 4—4 on Figure 3 and showing the construction of the window frames and a part of the latching mechanism for the movable frame;

Figure 5 is a view indicated by the line 5—5 on Figure 4 and showing more in detail the latching mechanism for the window;

Figure 6 is a view indicated by the line 6—6 on Figure 4 and showing the latching mechanism from the other side;

Figure 7 is a view indicated by the line 7—7 on Figure 3 and shows how the fixed window is carried on the window assembly;

Figure 8 is a view indicated by the line 8—8 on Figure 2 and shows how the fixed window assembly is retained in position when the window is mounted in the window opening of the vehicle;

Figure 9 is a view showing a modified form of latching mechanism for the movable window; and

Figure 10 is a view showing still another latching mechanism for the movable window.

Referring to the drawings and in particular to Figures 1, 2 and 3, the window assembly according to this invention comprises a sub-frame 10 which consists of a lower U-shaped section 12 and an upper U-shaped section 14, the said sections being adapted for assembly into a continuous frame by means of a pair of clips 16 and screws 18 which fasten the clips to the frame section. The frame is preferably an extruded section, such as aluminum, and includes an inwardly extending rib 20 on which is slidably mounted the movable sash 22. The movable sash 22 also has a frame 24 which is open at the top and within which is mounted the glass pane 26. The frame 24 is slotted around its outer periphery for receiving the rib 20 which thus guides the sash 22 in its up and down movements.

Around the outside of the frame 10 there is a slot 28 within which there is mounted the rubber-like sealing strip 30 as shown in Figure 4. This sealing strip provides a tight joint between the window frame and the window opening in the vehicle wall. A second groove 32 is also formed around the outside periphery of the frame 10 and is adapted for receiving the fixed window assembly generally indicated at 34 and which will be seen to comprise a panel 36 with the window pane 38 mounted therein as by the rubber-like bezel 40. As best seen in Figures 7 and 8, the panel 36 has a lip 42 turned in toward the back thereof which is adapted for slidably engaging the slot 32 of the frame 10. Thus, the assembly of the fixed window assembly 34 with the frame 10 merely consists of telescoping the former with the latter.

For retaining the window assembly in position in the vehicle, there is provided the open ring 44 through which the screws 46 are adapted to pass into engagement with the frame 10. As seen in Figure 4, the sub-frame 10 is receivable in the tapered window opening 48 which is formed by the recessing of the outer skin 50 of the vehicle wall which also has an inner member 52. When the sub-frame 10 is in position within the opening 48, then the ring 44 is placed there against and the screws 46 put in position. This tightly clamps

the sub-frame 10 in position and the assembly is completed. As noted before, the ring 44 is preferably open at the top but may, if desired, be closed at the top and thereby form a complete ring on the inside wall of the vehicle. As will be noted in Figure 8, the upper inclined wall of the window opening 48 overlies the fixed window assembly 34 and thus retains the said assembly in position. Optionally, the frame assembly 34 may have the screw holes 37 through which the screws 39 pass for holding the fixed assembly in place on the sub-frame 10, especially before the window assembly is placed in the vehicle window opening.

Cooperating with the sealing strip 30 around the outer periphery of the sub-frame 10 to form a weather tight window, there is a sealing strip indicated at 54 and carried by the fixed window assembly 34 and the sealing strip 56 which is carried in the peripheral slot in the sash frame 24 and surrounding the rib 20. These weather strips also provide anti-rattling means which prevent metal to metal contact of the parts of the window assembly.

For retaining the movable sash 22 in its various positions of elevation, there is provided a latching mechanism best seen in Figures 4, 5 and 6. This assembly comprises a channel 58 which is secured to the sub-frame 10 and within which there is slidably mounted the oppositely facing wedge members 60 and 62. The wedge members have the overlapping tapered end portions thereon between which passes the flexible metallic tape 64. This tape is secured to the top of the channel on one side and to the bottom thereof on the other side as indicated at 66 in Figure 5.

The wedges are retained together in the channel by a bracket 68 which lays along the open face of the channel and has the turned in end portions 70 which extend into the channel. Between the lowermost of the leg portion 70 and the lower wedge 62 there is a spring 72 which continuously urges the wedges toward each other and into wedging engagements with the channel. As best seen in Figure 6, the upper wedge 60 carries a pin 74 which extends through an aperture in the bracket 68 while the lower wedge 62 also carries a pin 76 which extends through the elongated slot 78 in the said bracket.

There is also in engagement with the pin 74 a plate 80 which extends over the face of the frame 24 of the sash 22 and which has the turned in end portions as at 82 thereon. The end portions 82 are apertured for receiving the stud 84 which is threaded beneath the upper end portions 82 for receiving the nut 86. Between the nut 86 and the lower of the portions 82 there bears the compression spring 88 which is sufficiently stiff to support the weight of the movable sash 22.

Secured to the face of the sash frame 24 is a box-like member 90 which encloses the plate 80 and has an upper portion which bears on the upper end of the stud 84 as at 92 and a lower portion which is apertured as at 94 for passing the lower end of the stud. The member 90 also has a laterally projecting lug 96 thereon which extends over but is spaced above the pin 76 on the lower wedge 62.

In operation, the wedges 60 and 62 are normally urged into engaged position within the channel 58 by the spring 72. The weight of the movable sash 22 is then carried on the pin 74 on the upper wedge through the plate 80, the spring 88, the stud 84 and the box-like member 90 secured to the sash frame 24. By lifting the sash frame, as by means of the lift clips 98 in Figure 3, the lower part of the box member 90 engages the lower leg 82 of the plate 80 and therethrough actuates the upper wedge 60 upwardly into released position so that the window can be moved vertically upwardly. When the upward thrust is removed from the window, the wedges re-engage and support the window in its raised position.

By thrusting the window downwardly, the spring 88 is compressed through the stud 84 and the member 90 carried on the window frame to permit the arm 96 of the member 90 to strike the pin 76 carried by the lower wedge and thereby to actuate the said wedge downwardly. This disengages the latching mechanism and permits the window to be moved downwardly. Whenever, the downward thrust is removed from the window the wedges again move into latching position and support the window.

In Figure 9 a somewhat modified construction for actuating the wedges is illustrated. In this view, the upper wedge 98 has a pin 100 thereon which extends into the box-like member 102 secured to the face of the frame 104 of the movable sash. The lower wedge 106 is continuously urged toward its engaged position by the spring 108 which bears between the said lower wedge and the lower end of the bracket 110 that retains the wedges within the channel 112. The lower wedge 106 has a stud 114 thereon which is adapted for engagement by the lower end of a lever 116 which is moved to strike the pin 114 by the manually operable lever 118 which has a projection 120 extending out the side of the box member 102. A spring 122 may be provided for returning the levers to their Figure 9 position when released. It will be apparent that any time the projection 120 is depressed the lever will be actuated in a counter-clockwise direction and disengage the wedges from the channel 112 and permit movement of the window in either direction.

In Figure 10 there is illustrated a conventional latching mechanism 124 which has a ratchet-like finger 126 adapted for engagement with a series of spaced apertures 128 which are carried by the stationary frame of the window. The thumb piece 130 is provided for withdrawing the ratchet member 126 from the apertures 128 when it is desired to lower the window.

It will be understood that this invention is susceptible to modification in order to adopt it to different usages and conditions and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

We claim:

1. In a vehicle having a window opening recessed inwardly from the outside of the vehicle; a window frame closely fitting said opening and having a lower sash slidably guided therein, said frame having an outwardly opening peripheral groove around at least the upper end thereof; an upper stationary sash carried by said frame and having a lip engaging said groove whereby said stationary sash is retained on said frame by the edge of said opening; a member fitting around the periphery of said opening on the inside of the vehicle; and fastening means rigidly connecting said frame and member.

2. In a window for vehicles and the like; a frame; guide means in said frame; a sash slidable on said guide means for vertical movements in said frame; a peripheral groove around at least the top of said frame and on the outside thereof; and a fixed sash comprising a panel having an

inwardly extending peripheral lip for engaging said groove thereby to support said fixed sash on said frame.

3. In a vehicle window; a frame comprising a pair of oppositely facing U-shaped members having the ends of their legs secured together; an inwardly extending rib in said frame; a movable sash slidably guided on said rib for vertical movements in said frame; an outwardly extending peripheral groove around said frame; and a fixed sash comprising a panel having a bent over lip for engagement with said groove whereby said fixed sash is supported on said frame.

4. In a vehicle window; a frame comprising a pair of oppositely facing U-shaped members having the ends of their legs secured together; an inwardly extending rib in said frame; a movable sash slidably guided on said rib for vertical movements in said frame; an outwardly opening peripheral groove around said frame; a fixed sash comprising a panel having a bent over lip for engagement with said groove whereby said fixed sash is supported on said frame; and another groove extending around the outside periphery of said frame and adapted for receiving a resilient sealing strip.

5. In combination with a vehicle having a window opening which is recessed inwardly from the outside of the vehicle and which has inwardly tapering walls; a window frame receivable in said opening from the outside and having a peripheral groove around its outer periphery for receiving a sealing strip; a second groove extending around the outer periphery of said frame along at least the upper portion thereof; a fixed sash comprising a panel having a turned in lip along the edge for being received in said other groove; a movable sash guided in said frame; a clamping member extending around the periphery of said window opening on the inside of the vehicle; and fastening means securing said member to said frame.

6. In combination with a vehicle having a window opening which tapers inwardly from the outside thereof and which has an inwardly extending flange around the periphery of the opening at the inside thereof; a frame receivable in said opening from the outside to abut said flange; a clamping member fitting around the periphery of said opening on the inside and also abutting said frame; fastening means securing said frame and clamping member together with said flange therebetween; sealing means interposed between said frame and the wall of said window opening; a fixed sash assembly mounted on the face of said frame and having a lip means extending over the periphery of said frame into positive sash-supporting engagement therewith, said sash being retained in position on said frame by the periphery of said opening; and a movable sash slidably mounted in said frame for vertical movements.

7. In combination with a vehicle having a window opening which tapers inwardly from the outside thereof and which has an inwardly extending flange around the periphery of the opening at the inside thereof; a frame receivable in said opening from the outside to abut said flange; a clamping member fitting around the periphery of said opening on the inside and also abutting said frame; fastening means securing said frame and clamping member together with said flange therebetween; sealing means interposed between said frame and the wall of said window opening; an outwardly opening peripheral groove in the upper part of said frame; a fixed sash assembly mounted on said frame and having a turned back lip extending into said groove so that said sash is supported by said frame and is retained in position thereon by the periphery of said opening; a movable sash slidably mounted in said frame for vertical movements; latch means for retaining said movable sash in any predetermined position of elevation in said frame; and sealing means between said movable sash and said frame and between said movable sash and said fixed sash.

8. In combination with a vehicle having a window opening which tapers inwardly from the outside thereof and which has an inwardly extending flange around the periphery of the opening at the inside thereof; a frame receivable in said opening from the outside to abut said flange; a clamping member fitting around the periphery of said opening on the inside and also abutting said frame; fastening means securing said frame and clamping member together with said flange therebetween; sealing means interposed between said frame and the wall of said window opening; an outwardly opening peripheral groove in the upper part of said frame; a fixed sash assembly mounted on said frame and having a turned back lip extending into said groove so that said sash is supported by said frame and is retained in position thereon by the periphery of said opening; a movable sash slidably mounted in said frame for vertical movements; and latch means for retaining said movable sash in any predetermined position of elevation in said frame, said latch means being responsive to a predetermined thrust on said movable sash for releasing said sash for movements in said frame.

9. In combination with a vehicle having a window opening which tapers inwardly from the outside thereof and which has an inwardly extending flange around the periphery of the opening at the inside thereof; a frame receivable in said opening from the outside to abut said flange; a clamping member fitting around the periphery of said opening on the inside and also abutting said frame; fastening means securing said frame and clamping member together with said flange therebetween; sealing means interposed between said frame and the walls of said window opening; an outwardly opening peripheral groove in the upper part of said frame; a fixed sash assembly mounted on the face of said frame and having a turned back lip extending into said groove so that said sash is supported by said frame and is retained in position thereon by the periphery of said opening; a movable sash slidably mounted in said frame for vertical movements; latch means comprising overlapping wedges for retaining said movable sash in various positions of elevation in said frame; and manual means carried on said sash and selectively operable for releasing said wedge means.

HARRY J. BADER.
WALTER C. DANIEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,602,868	Teel	Oct. 12, 1926
2,070,676	Northup	Feb. 16, 1937
2,107,773	Axe	Feb. 8, 1938
2,405,394	Austin	Aug. 6, 1946