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2,690,797

CAB WINDOW

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2 Sheets-Sheet 1

**Fig. 1.**

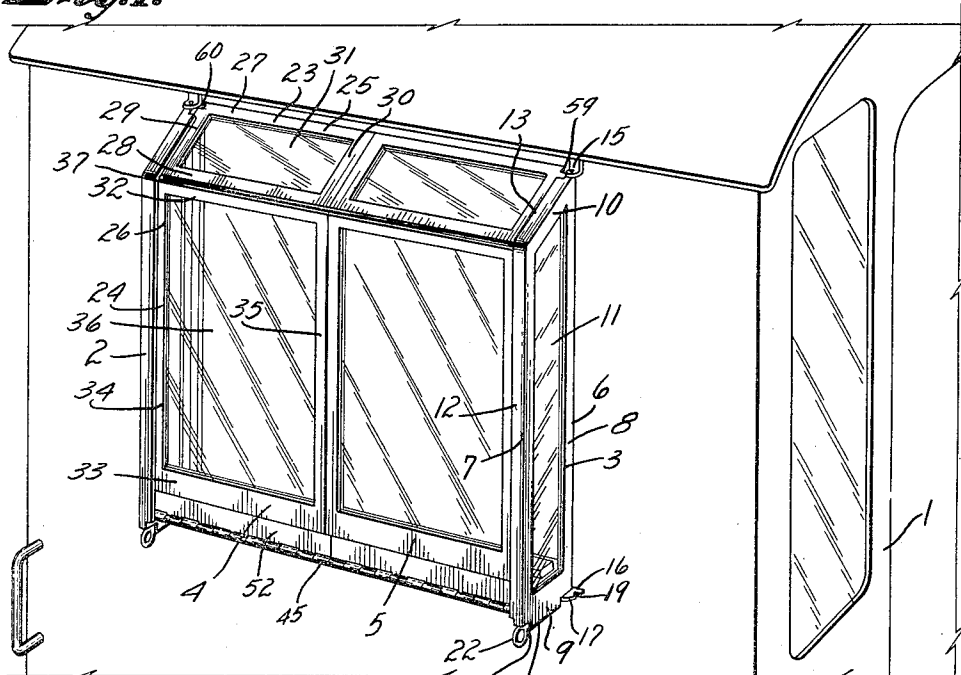


**Fig. 2.**

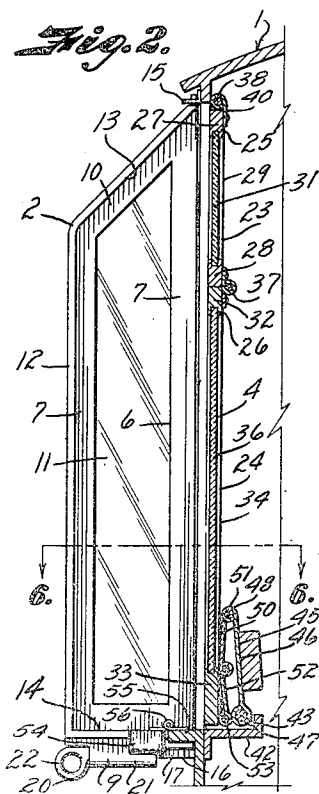


**Fig. 3.**

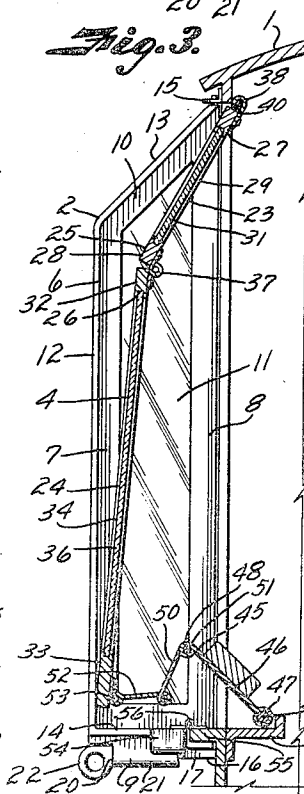
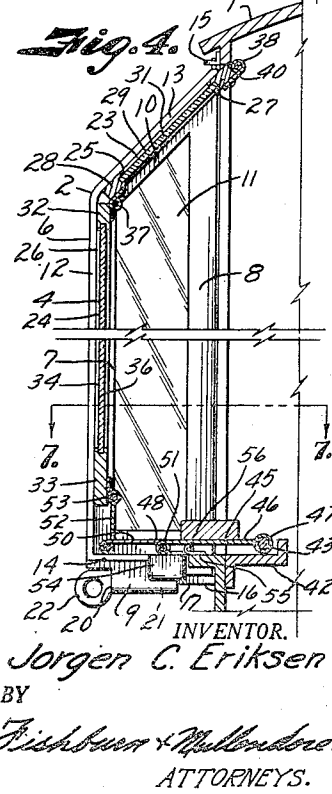


**Fig. 4.**



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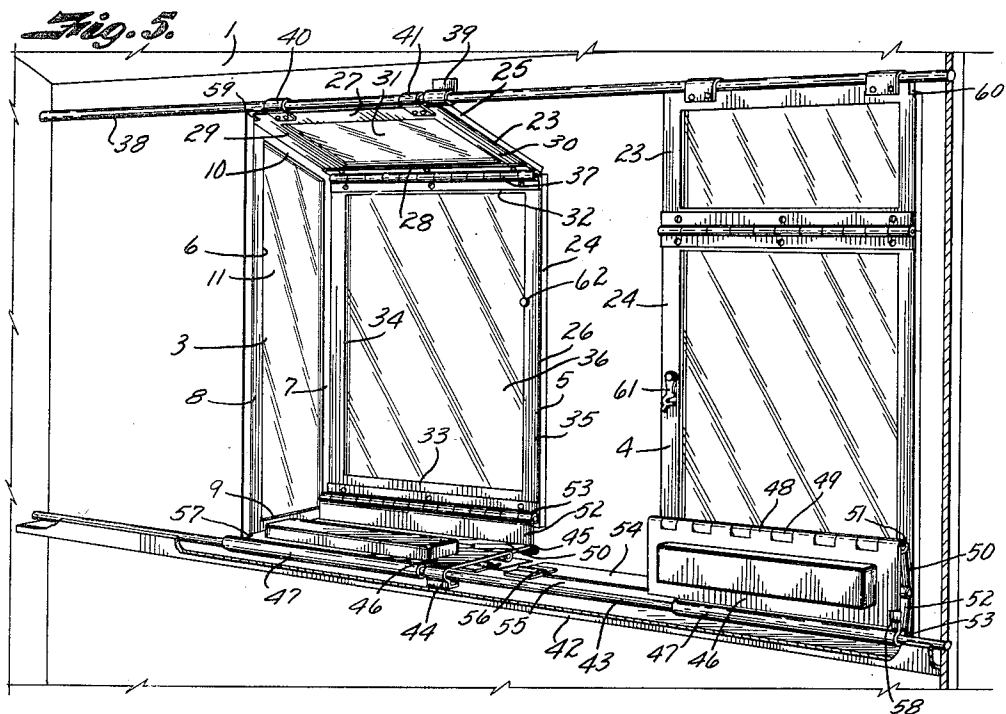
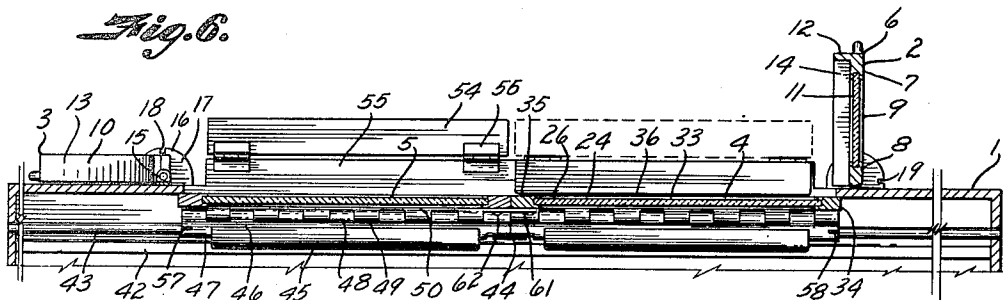
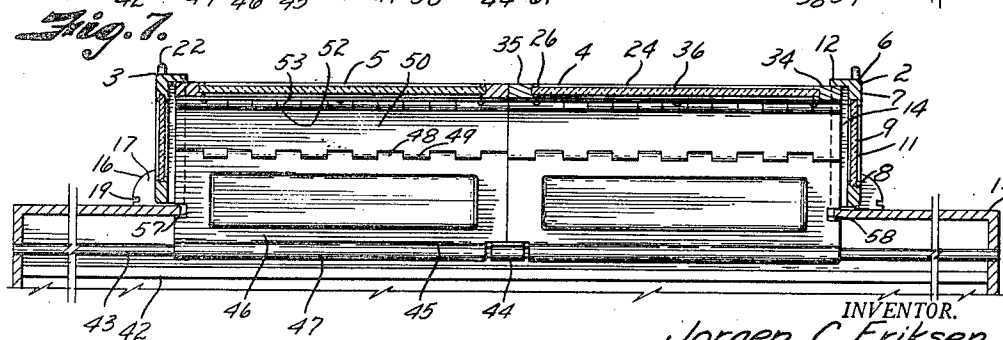
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## CAB WINDOW

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Application February 23, 1951, Serial No. 212,386

2 Claims. (Cl. 160—90)

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This invention relates to a window structure for the cabs of locomotives, particularly of the type used for switching, and has for its principal object to provide a window sash adapted to be used in the manner of the conventional sliding sash and also to be projected from the side of the cab and act in cooperation with the customary front and rear side wings during inclement weather to protect the engineer when observing signals in either forward or rearward directions.

Other objects of the invention are to provide a window sash structure that is of simple and inexpensive construction and which may be easily installed in the cabs of existing locomotives.

In accomplishing these and other objects of the invention as hereinafter pointed out, I have provided improved structure the preferred form of which is illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of the cab portion of a locomotive equipped with a window sash embodying the features of the present invention and showing the sash in projected position to cooperate with the conventional side wings in protecting the engineer when observing signals in either a forward or rearward direction.

Fig. 2 is a section through the side portion of the cab showing the window sash in a customary position for closing the window opening of the cab.

Fig. 3 is a similar section showing the sash being projected to form an extended enclosure as shown in Fig. 1.

Fig. 4 is a similar section showing the sash in fully projected position.

Fig. 5 is a view from the interior of the cab showing one of the sash members in projected position and the other in retracted position.

Fig. 6 is a horizontal section on the line 6—6 of Fig. 2 with the sash closing the window opening in the usual manner.

Fig. 7 is a similar section on the line 7—7 with the sash in projected position.

Referring more in detail to the drawings:

1 designates the cab portion of a locomotive of the diesel or electrical type such as used for switching purposes. The cab of such locomotives have side window openings that are normally covered by a pair of sash which in times of good weather are carried within the cab at the sides of the window opening and are adapted to be slid over the window opening to protect the engineer in times of inclement weather. However, when it is necessary for the engineer to observe signals in either a forward or a rearward direc-

tion, the sash must be opened and the only protection is that afforded by the customary side wings which in the drawing are designated 2 and 3. The side wings 2 and 3 only protect the eyes and face of the engineer from flying objects and wind currents in the direction that the locomotive is moving. Consequently, the cold enters the cab through the open window and it is difficult to maintain comfortable conditions within the cab.

In carrying out the present invention, I have provided a pair of inner sash units 4 and 5 that are adapted to be normally supported and moved across the window opening in the manner of conventional sash and which are adapted to be projected in cooperation with the side wings to protect the engineer and prevent entrance of cold air and the elements during inclement weather conditions. The side wings comprise frames 6 having vertical styles 7 and 8 connected at their lower ends by a cross rail 9 and at their upper ends by an inclined rail 10 that slopes downwardly from the side wall of the cab. Each frame carries a transparent panel 11 in the manner of an ordinary sash. While the frames may be formed of any material the vertical rail 7 and top and bottom rails 10 and 9 are provided with in-turned flanges 12, 13, and 14 so as to cooperate with the sash 4 and 5 in forming substantially weather tight joints as later described. The wings 2 and 3 are pivotally mounted at the upper and lower ends on brackets 15 and 16 that are carried by the side of the cab as best shown in Fig. 1.

The lower bracket includes a plate portion 17 having notches 18 and 19 which are adapted to be selectively engaged by a spring pressed pawl or slide bolt 20 to retain the wings against the cab or extended outwardly at right angles thereto. The bolts 20 are slidable in a depending portion 21 of the bottom rails of the wings to engage the outermost notches 18 in holding the wings in extended position at right angles to the side wall of the cab or the other notches 19 retaining the wings in folded back position against the side of the cab. The bolts 20 are adapted to be retracted by providing the outer ends thereof with eyes 22 which may be reached by the engineer through the window of the cab.

The sash units 4 and 5 are of a combined width to close the opening in the side wall of the cab and to lap and seat upon the inner side of the wing flanges 12, 13, and 14. Therefore, the combined width of the sash units is slightly greater than the width of the window opening so as to provide a complete closure when the window sash

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are in the position shown in Fig. 6 or in the projected position as shown in Fig. 7. Each sash unit 4 and 5 is composed of a relatively small upper rectangular section 23 conforming to the length of the upper inclined rails of the side wings and a lower and larger section 24 which is of a length so that when the sections are in the position shown in Fig. 2, the combined height of the sections will extend from the top to the bottom of the window opening. The sections 23 and 24 comprise frames 25 and 26 of any suitable material, the upper frames 25 having top and bottom rails 27 and 28 inter-connected by side rails 29 and 30 to contain a transparent panel 31. The lower frames 26 have upper rails 32 and lower rails 33 that are connected by vertical side rails 34 and 35 to contain a transparent panel 36. The rails 28 and 32 of the respective frames are connected together by a hinge 37 so that the sections are inter-connected and may be moved as a single unit from storage position to a position over the window opening as shown in Fig. 2, or to a projected position as shown in Fig. 4.

The window sash thus described are mounted at their upper ends on a slide rail or track 38 that extends along the upper edge of the window opening and is suitably supported at the ends by the end walls of the cab and at the center by a bracket 39, the rail being of sufficient length to carry the windows when in retracted position at the sides of the opening as shown at the right in Fig. 5. The sash are slidably suspended from the rail 38 by hangers 40 and 41 that loop over the slide rail and are attached to the upper rail of the sections 23 of the respective sash. Extending along the lower edge of the window opening and above a sill plate 42 is a similar slide or track 43 for slidably mounting the lower ends of the sash. The rail 43 is mounted in similar manner and the intermediate portion is carried by a bracket 44 attached to the sill rail 42.

In order that the lower sash may be projected and that the space be filled in at the sill portion of the window, each sash includes a folding section 45 including an arm rest plate 46 having a rolled edge 47 slidably mounted on the lower slide rail. The opposite edge has spaced tubular portions 48 that cooperate with similar portions 49 on a plate 50 to form a hinge joint, the portions 48 and 49 being connected by a rod 51 that extends therethrough. The arm rest plate 46 and the plate 50 are of sufficient combined width to project the lower section of the sash outwardly and retain it in contact with the flanges of the side wings as shown in Fig. 4. However, to close the space at the bottom of the lower sash sections, the plate 50 is hingedly connected along the forward edge thereof with a plate 52 having a hinge 53 attached to the inner face of the lower rail 5 of each lower sash section and which extends substantially vertically when the sash are in projected position. When the sash are in perpendicular position within the cab, the arm rest plate 46 and the two hinge plates 50 and 52 are in substantially parallel relationship as shown in Fig. 2.

When the sash are in retracted position along the sides of the window opening, the conventional arm rest 54 may be used. This arm rest is hinged to an outwardly extending sill plate 55 as indicated at 56 and folds inwardly over the sill plate when in use. When the sash are to be used, the arm rest may be swung outwardly into an out-of-way position as shown in Figs. 2 and 3.

Since the combined width of the respective

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sash is greater than the width of the opening, each arm rest portion of the lower hinge section is provided with a notch 57 and 58 respectively, the notches being of ample depth to allow for movement of the sash. Likewise, the upper outer corner of each upper hinge section is provided with a notch 59 and 60, respectively, corresponding with the depth of the notches 57 and 58. The sash may be connected together to hold respective sash in abutting contact by means of a latch 61 on one of the sash and which is adapted to engage a keeper 62 on the other sash.

Assuming that the sash units are assembled and installed in the window opening of a cab 1, they are operated as follows.

In the summer and during pleasant weather, the sash units 4 and 5 are supported in retracted position at the inner sides of the cab wall as illustrated at the right hand side of Fig. 5. In this position the upper and lower sash sections 23 and 24 are suspended from the upper rail 38 and the hinge plates 50 and 52 are folded with the arm rest plates 46 vertically and the hinge plates located parallel therewith between the arm plates 46 and the lower sash 24, the arm rest plate 46 being supported on the lower rail 43. The wings 2 and 3 on the outer side of the cab may be either folded back against the side of the cab or extended outwardly to protect the eyes of the engineer. The window opening may be closed by sliding the sash units 4 and 5 toward each other until the adjacent edges come into abutment as shown in Fig. 6. In this position the outer side styles or rails of the units overlap the inner edges of the window opening as also shown in Fig. 6. If the engineer desires to look up or down the track, the sash units may be slid to retracted position or if the engineer desires complete protection while looking up or down the track, the sash units 4 and 5 are slid to a position where the outer edge of one of the units will pass the adjacent side edge of the window opening when the upper sash section is swung outwardly on the upper rail. This movement may be effected by pushing the lower section 24 outwardly until it engages the vertical flange 12 of the wing at that side of the window. Outward movement of the lower sash section 24 effects unfolding of the hinge sections composing the plates 46, 50, and 52 so that the plates are supported on the bottom flange 14 of the adjacent wing. The entire unit is then shifted slightly so that the notches 53 and 60 engage the edge of the window opening. This shifting movement is sufficient to allow the other window unit to be likewise projected between the opposite edge of the opening and the adjacent side rails of the projected unit. When in projected position, the upper section forms the top, the lower sections form the front, and the folding sections form the bottom of an enclosure while the side wings 2 and 3 form the ends of the enclosure.

In projected position the outer side rails seat upon the in-turned flanges of the wings to provide substantially weather tight joints as shown in Fig. 7. After projecting the sash they may be readjusted so that they are in exact center position after which the latch 61 is engaged with the keeper 62 to hold the sash units in abutting relation. If it is necessary to return the sash units to storage position, they are easily manipulated to perpendicular position with the sash units suspended from the upper rail and in plane with the window opening so as to

provide clearance at the side of the car. The sash are then slid to retracted position alongside the inner wall of the cab after which the latches of the side wings may be released and the side wing swung back against the outer side of the cab wall.

From the foregoing, it is obvious that I have provided a sash structure for the window openings in a cab of a locomotive or the like which is of simple construction and easily operated.

It is also obvious that I have provided a simple structure for cooperation with the side wings of a cab to provide a projected enclosure for complete protection of the engineer when it is necessary to observe signals in either rearward or forward directions.

What I claim and desire to secure by Letters Patent is:

1. In combination with a window opening in the side wall of an engine cab having wings hinged to the wall of the cab at respective front and rear sides of the window opening and adapted to be moved from a portion alongside the wall of the cab away from said opening to an angular position relatively to said wall, of a sash means for closing the window opening in one position and when in another position forming with said wings an enclosure projecting from the wall of the cab to protect the head of the engineer when viewing up and down the track, said sash means including upper and lower sash sections, hinge means connecting the upper and lower sections together, rails extending along upper and lower edges of the window opening, means slidable on the upper rail and connected with the upper of the sash sections for supporting said sections for movement along said rails to close the window opening in said one position, said slidable means providing a hinge on which the sash sections are adapted to be swung outwardly through the window opening and between said wings to said other position with the upper of said sash sections forming a roof and the lower sash sections forming a front of the closure, and a bottom for said enclosure including hinged together sections having sliding pivotal support on the lower rail and having pivotal

connection with lower portions of the lower sash sections.

2. In combination with a window opening in the side wall of an engine cab having wings hinged to the wall of the cab at respective front and rear sides of the window opening and adapted to be moved from a portion alongside the wall of the cab away from said opening to an angular position relatively to said wall, of a sash means for closing the window opening in one position and when in another position forming with said wings an enclosure projecting from the wall of the cab to protect the head of the engineer when viewing up and down the track, said sash means including supports for attachment to lower and outer marginal edges of the wings, upper and lower sash sections, hinge means connecting the upper and lower sections together, rails extending along upper and lower edges of the window opening, means slidable on the upper rail and connected with the upper of the sash sections for supporting said sections for moving along said rails to close the window opening in said one position, said slidable means providing a hinge on which the sections are adapted to be swung outwardly through the window opening and between said wings to said other position with the upper of said sash sections forming a roof and the lower sash sections of said hinged together sections forming a front of the protective closure, and a bottom for said enclosure including hinged together sections having sliding pivotal support on the lower rail and having pivotal connection with lower portions of the lower sash sections, said bottom and sash sections being adapted to bear upon said supports of the wings.

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