

June 23, 1942.

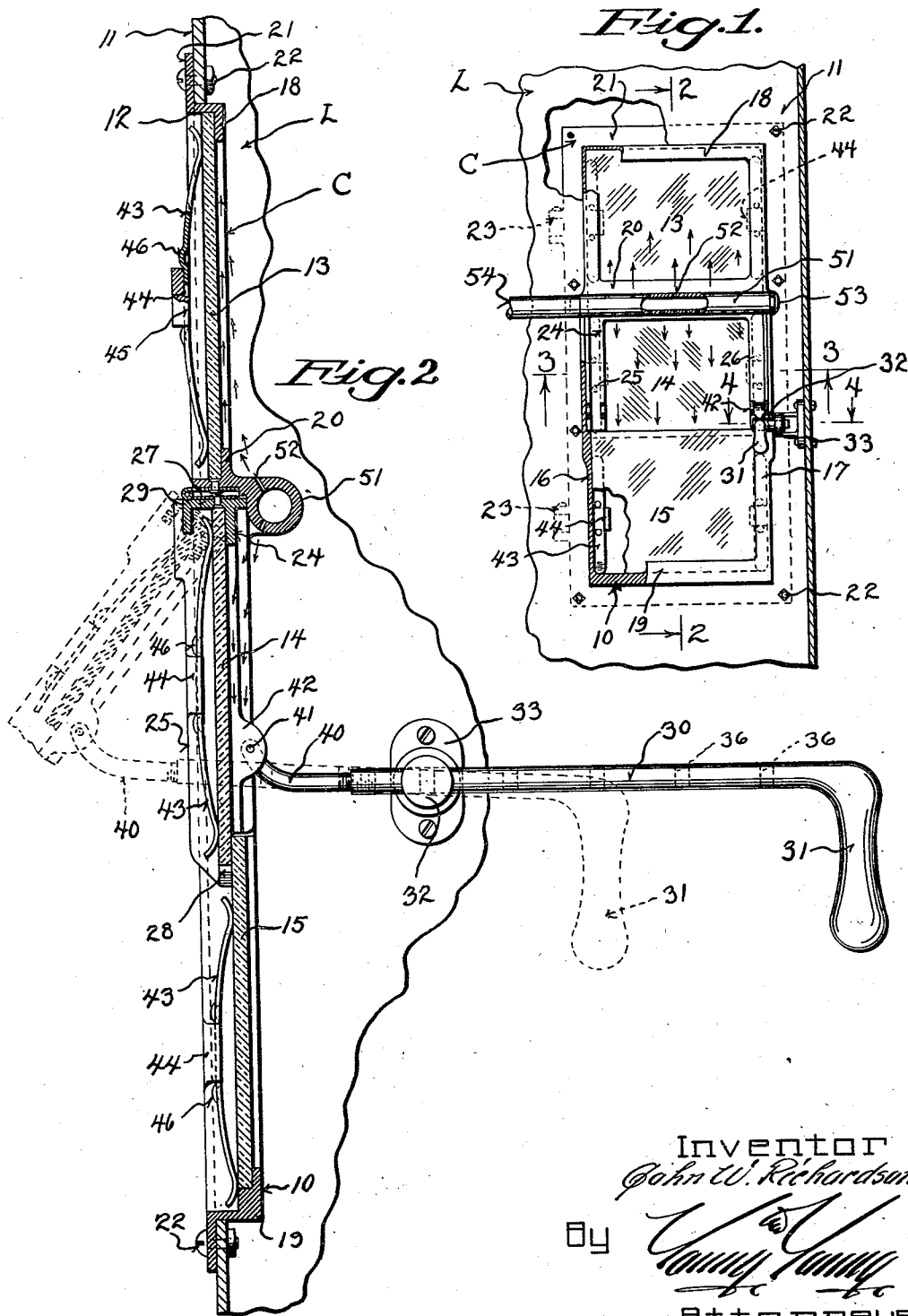
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2,287,195

LOCOMOTIVE CAB WINDOW

Filed March 29, 1939

2 Sheets-Sheet 1



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Fig. 3.

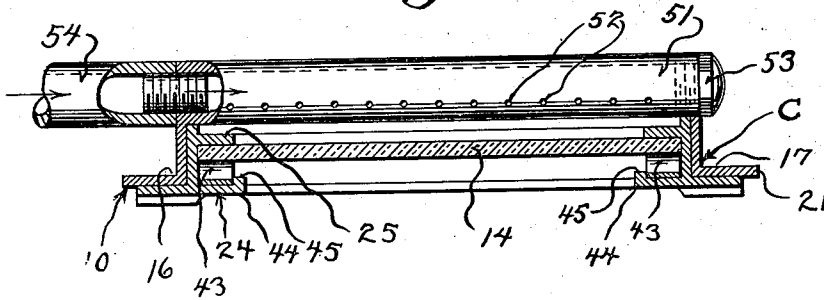


Fig. 4.

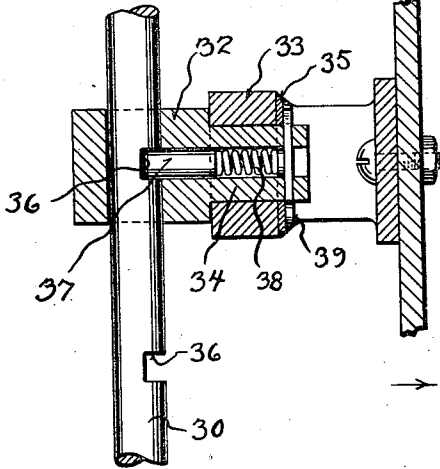


Fig. 5.

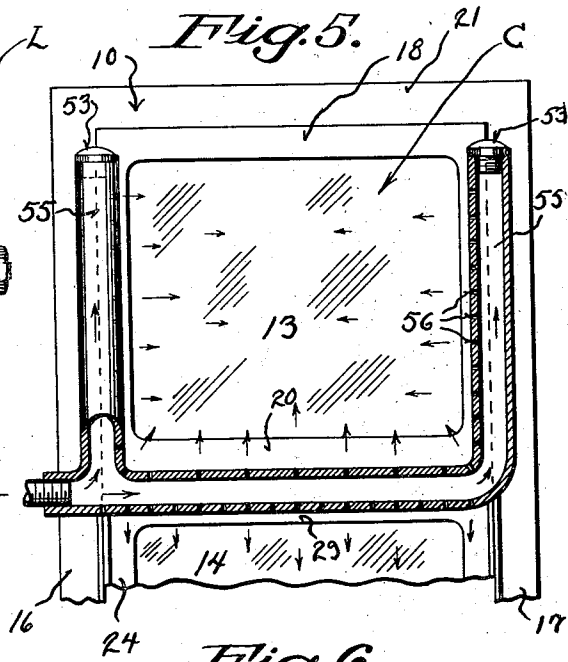


Fig. 6.

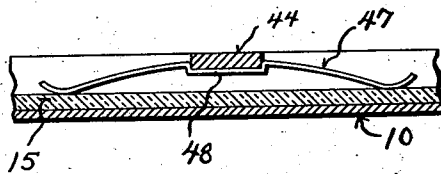
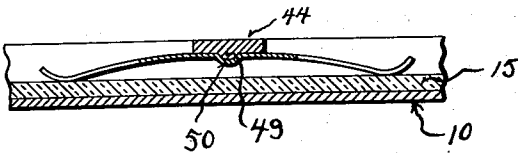


Fig. 7.



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UNITED STATES PATENT OFFICE

2,287,195

LOCOMOTIVE CAB WINDOW

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Application March 29, 1939, Serial No. 264,742

1 Claim. (Cl. 20—40.5)

This invention appertains to closures having transparent panels for vision purposes.

One of the primary objects of my invention is to provide novel means for constructing a window whereby a maximum amount of clear vision is assured, thereby rendering the window particularly adaptable for use in the front of the cabs of locomotives.

Another salient object of my invention is to provide a novel one-piece frame for the window, which can be either bolted or hingedly secured in place, as may be desired, to the front wall or sheet of the locomotive cab for supporting transparent panels, the frame allowing the panels to extend entirely to the edge thereof, whereby panels of maximum size can be employed.

Another important object of the invention is to construct the frame in such a manner that all of the panels can be of the same standard size, whereby to facilitate ordering and replacing of glass panels in case of breakage.

A further object of my invention is to provide novel means for firmly but detachably holding the glass panels in place, whereby said panels can be quickly removed and replaced when necessary.

A further important object of my invention is to provide the holding means for the glass panels of bowed leaf springs, whereby a certain movement of the panels under stress will be permitted, so as to reduce undue breakage of the panels.

A still further object of my invention is the provision of means for permitting the opening and closing of the central panel to different positions, with means for permitting an overlapping of the central panel over the lower panel, when the central panel is in its closed position to form a weather-proof window.

A still further important object of my invention is the provision of means carried by the frame for directing jets of heated air against the glass panels, whereby to prevent the collection of frost, ice, and snow thereon during the winter season.

A still further object of my invention is the provision of novel means for locating the manifold for the hot air jets on the frame, whereby the manifold will tend to heat the frame at the point where the central panel is hinged to said frame, and thereby prevent the freezing up of the hinge of said swinging central panel.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, 55

and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a rear elevational view of my novel closure, showing the same applied to the front wall or sheet of a locomotive cab, a fragment of the cab being shown, parts of the view being also shown broken away and in section to illustrate structural details.

Figure 2 is an enlarged, central, vertical, sectional view through the closure, taken on the line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 1, looking in the direction of the arrows, illustrating the distributor for the hot air carried by the frame.

Figure 4 is an enlarged, fragmentary, horizontal, sectional view taken on the line 4—4 of Figure 1, looking in the direction of the arrows, illustrating the means employed for operating the central hinged panel and for holding the hinged panel in a selected position.

Figure 5 is a fragmentary, rear, elevational view of a window, showing a slightly modified form of means for defrosting the glass panels thereof.

Figure 6 is an enlarged, fragmentary, sectional view illustrating a modified form of means for releasably holding a glass panel in place.

Figure 7 is a view similar to Figure 6, showing a further modified form of means for holding a glass panel detachably in position.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates my improved closure, and the same includes a rigid one-piece metal frame 10.

The closure C is particularly adaptable for use in the front of locomotive cabs, and in the drawings, to show one use of my invention, I have illustrated the closure C applied to the front wall or sheet 11 of a locomotive cab L. The front wall or sheet of the cab L, on each side of the boiler, is provided with an opening 12, and in the present instance, my frame 10 is fitted within the opening. Due to the fact that the side walls of the cab project a less distance from the sides of the boilers on new locomotives (or the boilers take up a greater space), the openings 12 in the front of the cab are, of necessity, of a narrower order than formerly. In order to provide maximum vision, I provide the novel frame 10 for receiving transparent panels 13, 14, and 15, which ex-

tend substantially the entire distance across the frame 10 and the opening 12.

The transparent panels 13, 14, and 15 can be constructed from any desired material, such as safety glass, plate glass, etc.

The frame 10 includes spaced, parallel, longitudinally extending, vertical side bars 16 and 17, top and bottom transverse bars 18 and 19, and an intermediate transverse cross-bar 20. All of the mentioned bars 16, 17, 18, 19, and 20 are of an angle-shape in cross section, so that the glass panels can be readily placed in the frame against certain of the flanges of the angle bars. Likewise, the bars 16, 17, 18, and 19 carry outstanding marginal flanges 21.

In the preferred installation, the frame 10 is securely fastened to the front wall 11 of the cab by the use of bolts or the like 22, but, if so desired, the frame 10 can be hingedly secured in place, whereby the frame, with its panels, can be opened and closed like a door or swinging window sash. The hinges are suggested in Figure 1 in dotted lines and are indicated by the reference character 23.

The transverse cross-bar 20 is arranged closer to the top cross-bar 18 than to the lower cross-bar 19, and this transverse, intermediate cross-bar 20 constitutes a rest for the top panel 13 and a support for the swinging frame 24 for the intermediate glass panel 14. All of the panels 13, 14, and 15 are of the same size, so that all of the panels are interchangeable. However, it is to be noted that the panels 14 and 15 are so arranged that when the swinging frame 24 is in its lowered position, the panel 14 will overhang or overlap the panel 15, so that a weather-proof closure will be had. Likewise, with this construction, the intermediate panel 14 can be opened a slight distance for ventilating purposes without causing the formation of a direct draft.

Referring more specifically to the swinging frame 24 for the intermediate panel 14, it will be noticed that the same includes spaced, parallel, side bars 25 and 26 connected together at their upper edges by a top cross-bar 27, which can be of a U- or channel-shape in cross section. The panel 14 fits close against certain flanges of the bars 25, 26, and 27, and the lower ends of the bars 25 and 26 carry lugs 28 on which the lower edge of the panel 14 rests. The top bar 25 is connected with the lower face of the transverse, intermediate cross-bar 20 of the main frame by means of a piano hinge 29.

Any desired and preferred means can be provided for raising and lowering the swinging frame and for holding the swinging frame 24 in a selected position. In the present instance, I have shown the operating means for the swinging frame 24 consisting of an operating rod 30. The rod 30 can be situated within the cab at a point most convenient to the engineer, and the outer end of the rod is provided with an operating handle 31, which can be of the pistol grip type. This operating rod 30 slidably and rotatably extends through a guide sleeve 32, which is, in turn, rockably mounted on a bracket 33 secured to the cab. The guide sleeve 32 is provided with a hollow spindle 34, which is rotatably mounted in the bracket 33, and the spindle 34 is held against accidental displacement from the bracket by means of a washer 35. The operating rod 30 is provided at spaced points with keeper notches 36 for the reception of a lock plunger 37. This plunger is slidably mounted within the sleeve 32 and is normally urged toward the op-

erating rod 30 by an expansion spring 38. One end of the spring bears against the lock plunger 37, and the other end against a cotter pin 39. This cotter pin 39 passes through the spindle 34, and also serves as means for holding the washer 35 in place. The forward end of the operating rod 30 has connected thereto by suitable threads the arcuate arm 40, and the forward end of the arm is connected by means of a pivot pin 41 to pivot ears 42 formed on the swinging frame.

Normally, the plunger 37 fits within one of the keeper notches 36, and when it is desired to open or close the swinging frame, the hand grip 31 is grasped and the rod 30 is rotated a partial turn, so that the plunger 37 will ride on the smooth portion of the rod 30. The rod 30 can then be slid back and forth until the swinging frame reaches the desired position, at which time the rod 30 is rotated back to its initial point of rest, so that the plunger 37 can again spring into the closest keeper notch.

As brought out in the objects of my application, one of the important features of the invention is the provision of the means employed for detachably, but firmly holding the transparent panels in place. In order to detachably hold the panels in place, I provide bow leaf springs 43 for each panel. The main frame 10, adjacent its opposite ends, and the swinging frame 24, intermediate its ends, are provided with inwardly projecting lugs 44. By compressing the leaf springs, the intermediate portions thereof can be sprung under the lugs, and thus the springs will be placed under tension and will bear against the sides of the panels and hold the panels tightly against the frames. The outer ends of all of the leaf springs can be curved so as to form bearing feet for engaging the panels, whereby to prevent injury to the panels.

By this construction and arrangement, it will be appreciated that it is merely necessary to depress the central portions of the springs 43 and slide the same from under the lugs 44 in order to remove the panels. This forms a quick and efficient means for replacing the panels. This construction eliminates undue breakage of glass, in that the panels are permitted of certain outward movement, and, thus, the panels can resist certain outward strains placed thereon.

In order to prevent the accidental displacement of the bow leaf springs 43, the lugs 44 can have their outer ends provided with lips 45, and these lips engage the outer edges of the springs and prevent the springs from working out from under the lugs. The springs can also have struck-out teats 46 thereon for lying on opposite sides of the lugs 44 to prevent longitudinal sliding movement of the springs.

Obviously, the springs and their holding means can take various forms, and, in Figure 6, I have shown a leaf spring 47 with its intermediate portion provided with a saddle 48 for receiving the holding lug.

In Figure 7, I have shown the underface of the holding lug provided with a boss 49, which is adapted to be received in a socket 50 formed in the leaf spring.

From the description so far, it can be seen that I have provided a novel window for locomotive cabs in which full vision is provided, and in which a one-piece rigid frame is accurately fitted within the openings formed in the front of the locomotive cab.

During the winter season, I have provided novel

means for keeping the glass panels clear of frost, ice, and snow. This means includes a manifold or distributing pipe 51, which extends transversely across the main frame 10. This manifold 51 can be formed integral with the transverse, intermediate cross-bar 20, and the manifold or distributing pipe 51 is provided with upper and lower, outwardly angled, spray openings 52. These openings 52 are directed toward the panels 13 and 14, and are placed at spaced points longitudinally along the manifold or distributing pipe 51. One end of the distributing pipe 51 can be closed by a plug 53, and the opposite end is adapted to be coupled to a supply pipe 54 leading from any source of heated fluid, such as compressed hot air. Obviously, when hot air under pressure is forced into the manifold 51, the hot air will be sprayed out of the manifold against the panels 13 and 14, and this hot air will effectively keep the panels in a clear condition so as to insure clear vision therethrough. The hot air from the lower openings 52 in the manifold will tend to flow along the panels 14 down to the panel 15, and, thus, the hot air will also tend to keep the lower panel 15 in a clear condition.

Great stress is placed on the location of the manifold or distributing pipe 51, and it is to be noted that this pipe is located adjacent the hinge 29, and, thus, the heat from the pipe will be

transmitted to the hinge, and this will prevent the hinge from freezing up. Thus, the free swinging of the panel 14 and its frame is assured during all seasons of the year.

As shown in Figure 5, the manifold 51 can have formed thereon vertical branches 55, and these branches can extend alongside the frame. The branches 55 can also have inwardly directed openings 56, so as to cause the impinging of heated air against the sides of the top panel.

Other changes in details can be made without departing from the spirit or the scope of my invention, but what I claim as new is:

A locomotive cab window comprising, a metal frame including longitudinally extending side bars, top and bottom cross-bars, and an intermediate cross-bar, a top transparent panel fitted in the upper part of the frame, a swinging panel having a frame hingedly connected to the intermediate cross-bar, a transversely extending distributing manifold pipe having upper and lower rows of openings communicating therewith facing toward said panels, said pipe being adapted to receive heated air, and said pipe being carried by and forming a part of the transversely extending intermediate cross-bar, whereby heat from said pipe will be transmitted to the cross-bar and the hinge to prevent freezing up of said hinge.

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