Nov. 22, 1938. H. G. HUCKSTEP ET AL 2,137,290

FOLDING WINDOW

Filed Jan. 10, 1938 2 Sheets-Sheet 1

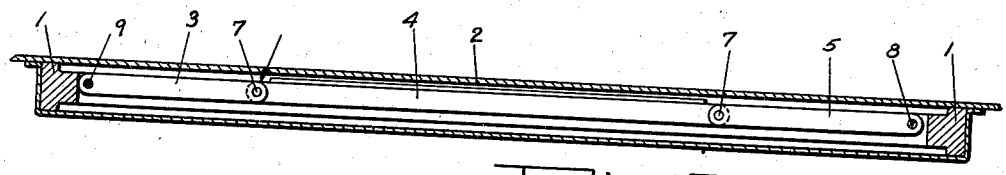


Fig. III

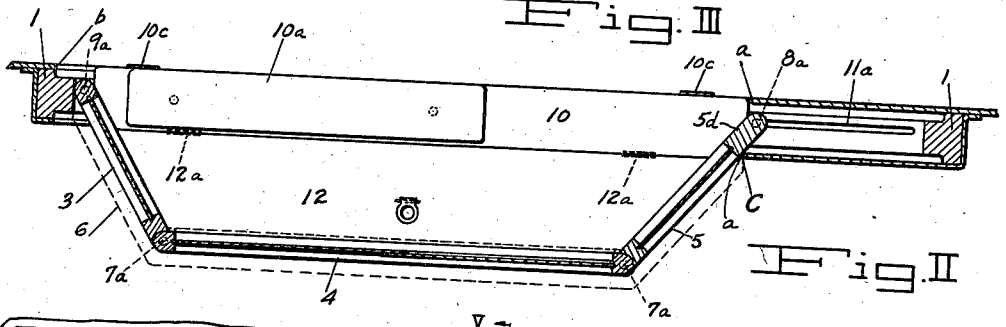


Fig. II

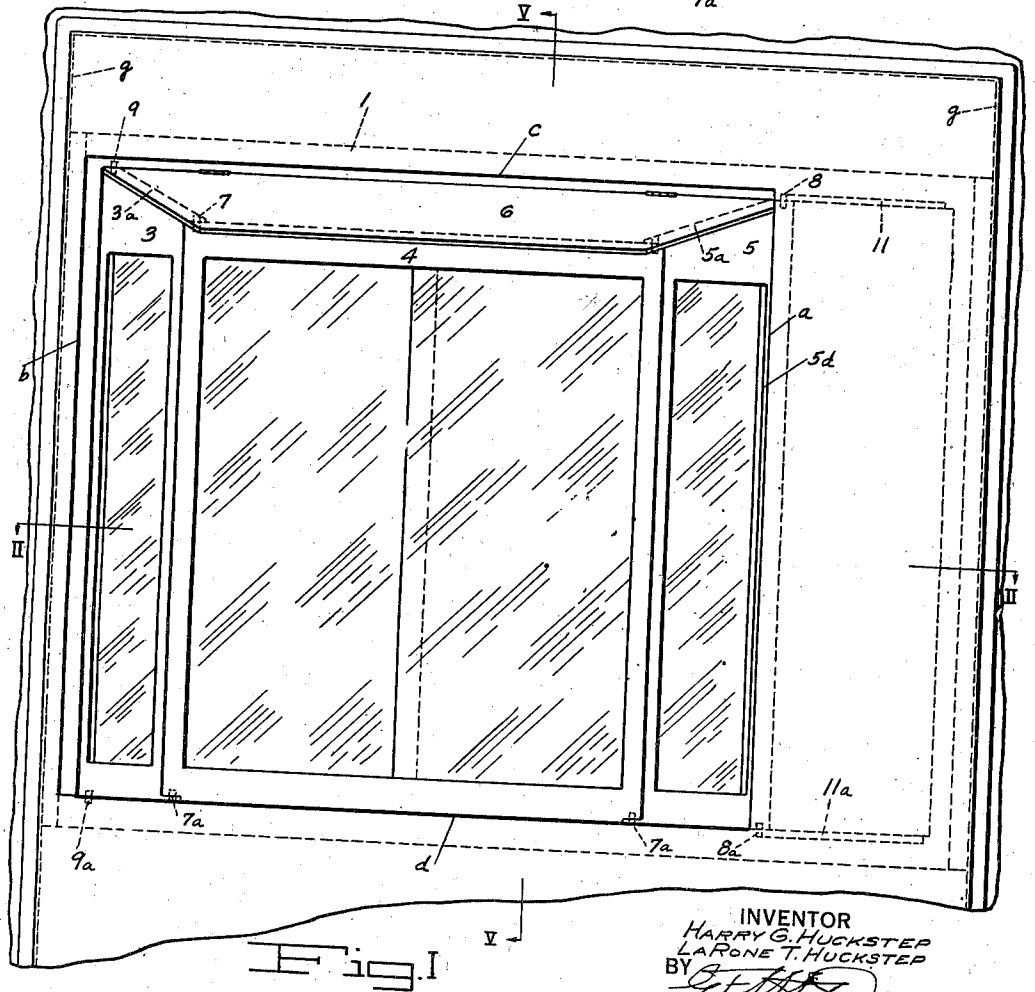


Fig. I

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Filed Jan. 10, 1938 2 Sheets-Sheet 2

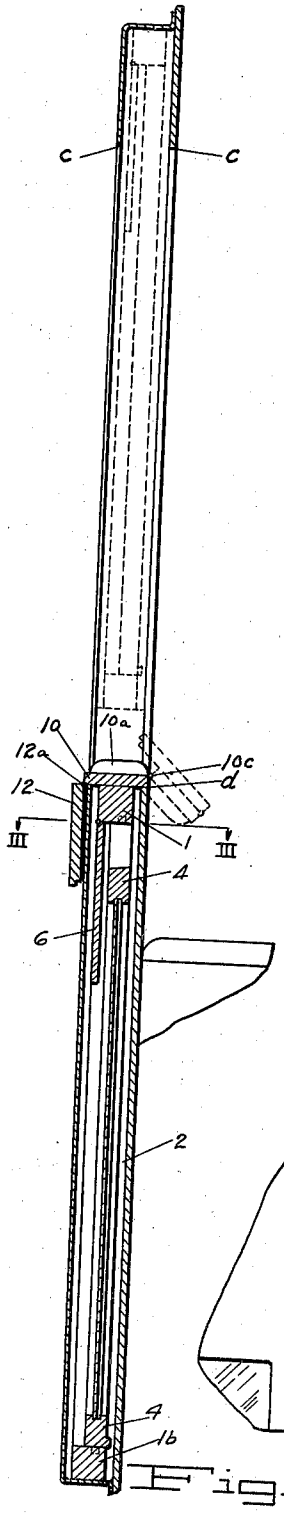


Fig. IV

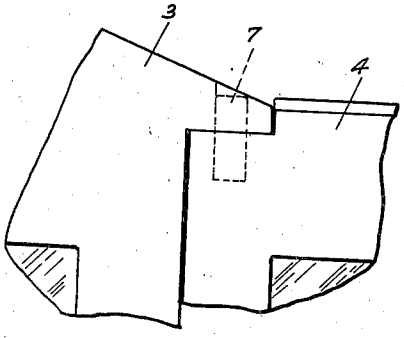


Fig. VII

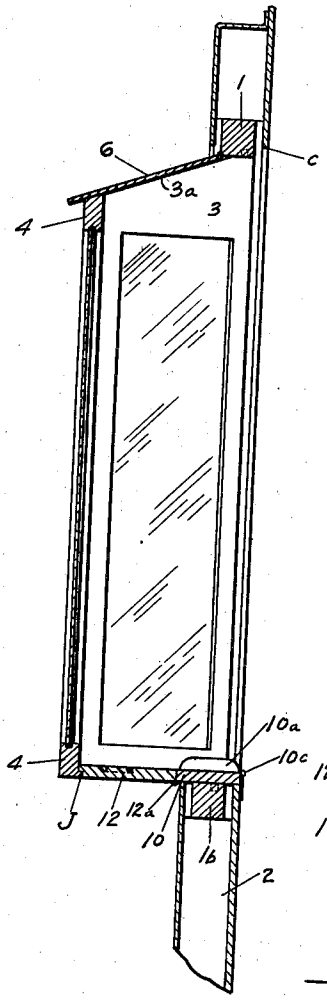


Fig. V

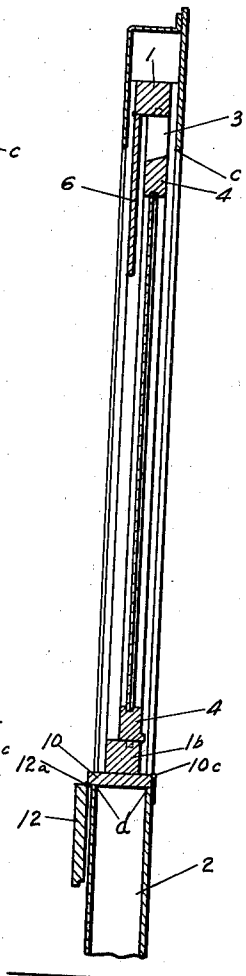


Fig. VI

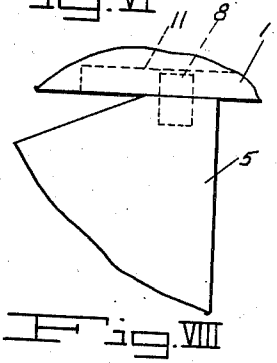


Fig. VIII

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2,137,290

FOLDING WINDOW

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Application January 10, 1938, Serial No. 184,177

2 Claims. (Cl. 20—40)

This invention relates to cab windows for locomotives and has for its principal object the provision of a window that may operate and serve as does the standard cab window, to slide into or out of registration with an opening in the side of the cab, or which may be adjusted to form a deep bay-window, so that the engineer may be protected during severe weather or in dust storms when leaning outward to see signals and for other purposes in the safe operation of the engine.

A secondary though absolutely essential condition is that such a window shall be so constructed that it will lock into rigid relationship with the supporting structure, especially when in the form of a bay-window, and an object is to attain that degree of inherent stability of design.

Another object of the invention is the provision of a window of the character indicated that it is possible to install in the very limited space available.

With the above and other objects in view, this invention resides in the constructions and combinations of parts, all as hereinafter described in detail, illustrated, and particularly pointed out in the claims.

In the drawings which accompany and form a part of this specification,—

Fig. I is a side elevation of the window, extended beyond the general outline of the engine cab in the form of a bay-window;

Fig. II is a section taken at II—II of Fig. I;

Fig. III is a section taken at III—III of Fig. IV;

Fig. IV is a sectional view of a side of the engine cab, not taken from any other view, but which shows the preferred construction, of a pocket within the cab wall below the window opening so that the window and its frame may be dropped down into it as shown;

Fig. V is a section at V—V, Fig. I;

Fig. VI represents the same structure shown in Fig. V but with the window functioning as a standard cab window;

Fig. VII is an enlarged view of the structure around the hinge element 7, serving also to illustrate 7*a* if reversed; and

Fig. VIII is an enlarged view of the gudgeon, 8, and similarly of 8*a*.

In the drawings, the lines *a*, *b*, *c* and *d* represent the standard window opening in a locomotive cab, fixed by experience and practice as close to four feet wide and high enough so that the engineer will not be hampered in his movements to watch signals for operation of his machine.

1 is a frame member for my novel window and 2 represents a space beneath the window opening into which the frame may be dropped completely clear of the opening, upwards or downwards being a necessary mode of disposition since engine cabs are not eight feet long and the window cannot be slid laterally out of place for lack of room. Vertical guides are indicated by the dotted lines *g g*.

It is intended to use the well known counterbalance for the window though this has been omitted from the drawings since the art needs no instruction to apply such a counterbalance.

The window proper consists of three glassed sections 3, 4 and 5, with straight bottoms and a straight top for the center section 4, the end sections 3 and 5 being provided with beveled tops 3*a* and 5*a* that they may register with the visor 6 in slanting position.

The section 3 is provided with pivot pins 9 and 9*a*, by which it is pivotally mounted in the main frame 1. The section at the other end, 5, has gudgeon pins 8 and 8*a* that are slidable in the slots 11 and 11*a*, at the same time serving as pivots for the section 5. Pivot pins, 7 at the top and 7*a* at the bottom, pivotally connect the center section 4 to the two end sections 3 and 5 so that they may all line in the plans of the main frame or may be debouched into bay-window form as shown in Figs. III and II respectively. The slots permit the sliding of the end section 5 and corresponding movement of the attached sections, as will be explained.

To make use of the structure as a bay-window, the main frame 1 is raised until the top of its bottom stile 1*b* is flush with the bottom line *d* of the window opening; then outward lateral pressure against the pivoted joint, pivoted by 7 and 7*a*, see arrow in Fig. III, will break the joint outwardly from the window opening, at the same time drawing the section 5 along in the frame, by virtue of the gudgeon pins 8 and 8*a* and the slots 11 and 11*a*, finally permitting the section 5 to be pushed outwardly to conform with the first named section, when the structure will be as in Fig. II, noting that the outer frame member of 5, designated 5*d*, comes into firm contact with the side of the window opening, this contact being indicated at "C".

An arm rest 10 is hinged at 10*c* to the bottom member *d* that defines the window opening, to which in turn is hinged the leaf 12 by hinges 12*a*. It is also provided with a removable arm rest

pad 10a. When the window has been debouched into bay-window form as described, the arm rest and its hingedly attached leaf 12 are folded over to close the angular bottom space outlined by the members 3, 4 and 5 in the extended position as in Figs. II and V. The leaf 12 will be carefully fitted to this area and is preferably made with a shiplap joint, such as "J" to promote rigidity.

When it is desired to use the window like an ordinary cab window, the frame 1 is raised up into the position shown in dotted outline in Fig. IV, the arm rest is swung from the dotted line to the full line position with the leaf 12 outside, the arm rest pad 10a is removed and the window let down onto what is left of the arm rest 10 as shown in Fig. VI, and it will be noted that the upper ends of the window elements 3 and 5 are then prevented from yielding outwardly by accidental pressure, as they are above the top line of the window opening and also protected by the visor member 6.

It has been heretofore proposed to arrange cab windows to slide lengthwise out of registry with a window opening and several of them were intended to be extended outwardly but I am not aware that anyone has heretofore appreciated the necessity of making the window members absolutely rigid when in use, nor that they must not only stand the surges due to use of a locomotive, but often must withstand the substantial pressure of the engineer's body, due to sudden stoppages when coupling and on other occasions, nor has the necessity of moving the window vertically, into and out of registry, been appreciated.

Having fully disclosed our invention so that it may be employed satisfactorily without further instruction, what we claim as new and desire to secure by Letters Patent, is,—

1. The combination with a main window frame vertically movable into and out of registry with a window opening, of a three section framed window pivotally mounted in the main frame at one end, slidably mounted at the other end with the center section pivotally joined to the end sections in such manner that the sections may optionally lie in the same plane as the main frame or be debouched to form a bay window outside of the opening, and a bottom leaf that is hingedly attached adjacent the window opening to be movable into the angular space delimited by the sections and rigidly hold them in place.

2. The combination with a window frame that is mounted for movement into and out of registry with an opening, of a multiple section window frame mounted in the first named frame that is adjustable laterally to bay-window form, a visor member pivoted on the first named frame that automatically covers the bay window and a member independently hinged adjacent the first frame that is movable to close the bottom of the bay window and lock it in rigid position.

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