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R. KERR

2,389,315

RELEASE DEVICE FOR SAFETY ROOF EXITS

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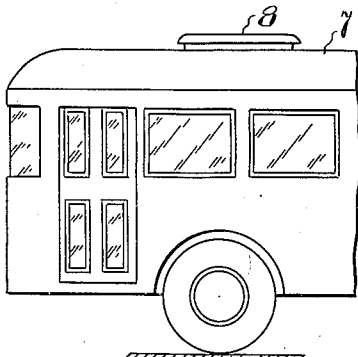


FIG. 1.

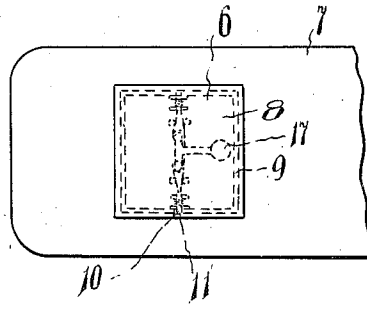


FIG. 2.

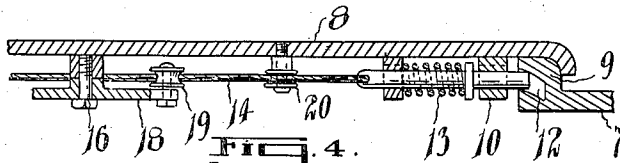


FIG. 4.

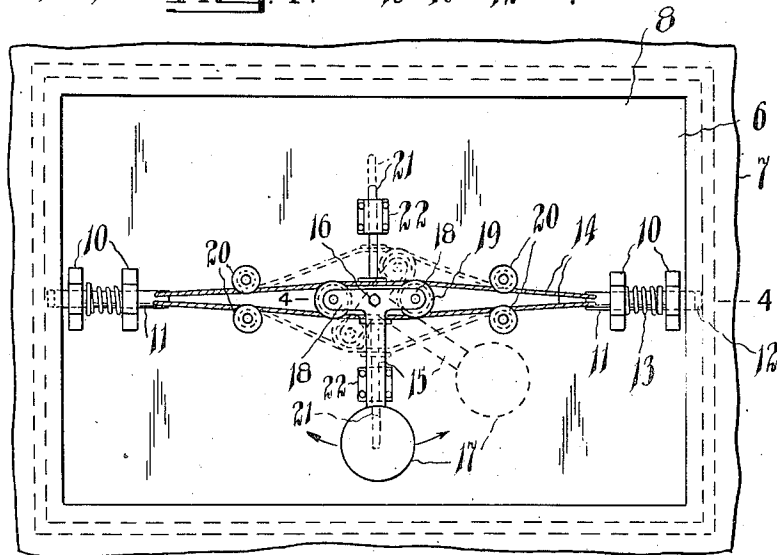


FIG. 3.

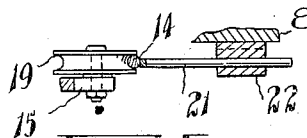


FIG. 5.

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ATTY.

UNITED STATES PATENT OFFICE

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RELEASE DEVICE FOR SAFETY ROOF EXITS

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2 Claims. (Cl. 292—21)

My invention appertains to automatically released escape hatches for vehicles in which passengers are carried, such as an omnibus or a railway car.

The importance of providing an emergency exit whereby occupants of the vehicle may quickly escape should an accident occur in which, for instance, the vehicle topples and catches on fire is well recognized. In providing a roof exit for this purpose it is of the utmost consequence that the release mechanism be of a serviceable and reliable construction so that it will be adapted to function instantly when action on its part is demanded.

Hence it is the object of my invention to produce a release mechanism of this nature that will fully meet the requirements. The mechanism utilizes a weighted lever disposed to be thrown to an actuating position should the vehicle be caused in any manner to fall to one side or the other. The invention comprehends the novel construction and arrangement of a flexible cable connection between latching members and an eccentric element for exerting a pull on the cable connection when actuated by the weighted lever. An important feature of construction is that the cable connection embodies means for equalizing the pull so that the latching members will be uniformly operated in their release movement.

The selected embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fractional elevation of a vehicle equipped with a roof exit in which the invention is incorporated.

Fig. 2 is a plan view thereof.

Fig. 3 is an enlarged view of the inner side of the roof showing the mechanism of the escape hatch.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a detail of the equalizing means for the cable connection.

Like numerals of reference indicate corresponding parts in each of the figures throughout the drawing of the invention.

The hatch is formed in approved manner as by a suitably located aperture 6 in the roof 7 and may be of the rectangular shape depicted in the drawing. The cover 8 fits over the curb 9 and preferably has a marginal flange curved downwardly to produce a stream-lined effect.

A pair of latches 10 are employed to normally secure the cover, one of which is located at each side of the longitudinal centre of the roof. Each latch comprises a bolt 11 suitably mounted on the

inner side of the cover and spring projected into engagement with a keeper 12 as by a compression spring 13 of the coil type.

The bolts are connected to a pair of flexible cables 14 which are slightly spaced apart and drawn taut in the projected position of the bolts. A lever 15 is pivoted at 16 medially of the latches and has its pivotal axis arranged between the cables so that it may swing and the cables may be spread without interference. The lever is supplied with a suitable weight piece 17 at its distal end and at its proximal end there is provided oppositely directed arms 18 at right angles to the length of the lever. The arms each have a grooved roller 19 engaged with the sides of the cables. The arms and their roller termini form an eccentric or cam device for urging the cables outwardly in a flexing movement to draw the ends attached to the latches inwardly.

In proximity to the arms there is an arrangement of rollers 20 mounted at the outer sides of the cables and engaged therewith to confine the spreading effect of the cam device to the intermediate reaches of the cables. The rollers 20 have peripheral grooves for seating the cables.

The weighted lever is normally disposed longitudinally of the roof so that in the event of the vehicle toppling it will be thrown laterally. The throw of the lever turns the eccentric or cam device, as indicated in dash lines in Fig. 3, thus causing the rollers 19 to spread the runs of the cables between the confining sets of rollers 20 with the result that the ends of the cables are pulled to retract the bolts to unfasten the cover. The eccentric or cam device exerts a flexing action on the cables by this arrangement.

To assure that the bolts will be uniformly withdrawn each cable is furnished with an equalizing device consisting of a rod 21 extending outwardly therefrom and having its inner end rigidly attached thereto. The rod is slidably guided in a bearing 22. As the cable is urged outwardly by the eccentric or cam device the rod recedes and causes a positive and equal pull to be exerted on each bolt.

It will be manifest that the invention provides a serviceable and highly efficient release mechanism for the hatch and one which can be manufactured at low cost.

What I claim is:

1. An automatic release mechanism for the cover of a roof exit, comprising a pair of latches mounted at opposite side edges of the cover including outwardly projected bolts, a flexible cable connecting the bolts and drawn substantially taut

thereby, a weighted lever pivoted intermediate of the length of the cable, an eccentric device on the lever engaged with the cable for flexing the intermediate extent thereof in a manner to pull the ends of the same for withdrawing the bolts, and means connected to the cable for causing uniform withdrawal of the bolts.

2. An automatic release mechanism for the cover of a vehicle roof exit, comprising a pair of latches mounted at opposite side edges of the cover including spring projected bolts, a flexible

5 element connecting the bolts and drawn substantially taut thereby, a weighted lever fulcrumed adjacent to the flexible element, means actuated by the lever for flexing a section of the flexible element to withdraw the bolts, and means for effecting uniform withdrawal of the bolts consisting of a rod united with the medial extent of the flexible element and extending outwardly therefrom, and a bearing member in 10 which the rod is slidably engaged.

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