

T. H. LOVEJOY.
STREET CAR.

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UNITED STATES PATENT OFFICE.

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STREET-CAR.

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To all whom it may concern:

Be it known that I, THOMAS H. LOVEJOY, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Street-Cars, of which the following is a specification.

My invention relates to improvements in street-cars, and more particularly to the means or mechanism for mounting and supporting and operating the life-guard or protecting-frame which surrounds the truck and wheels of the car. The life-guard in ordinary use is normally carried at a height of about four inches above the track, but in time of danger it is designed to be lowered very near to the ground to enable it to better protect persons falling or in danger on the track from being run over by the wheels, and as the life-guard completely surrounds the truck and wheels on all sides it is necessary to drop the life-guard entirely upon the ground when it is desired to remove the wheels from the car or truck for repairs or other purposes.

The object of my invention is to provide a simple, durable, and efficient means or mechanism for supporting the life-guard normally at the required height above the ground and by means of which it may be easily and quickly and certainly lowered near to the ground in time of danger, and whereby also the life-guard may be readily dropped upon the ground at both ends without the necessity of removing the large number of bolts, as heretofore required, when it is desired to remove any of the wheels from the car, thus saving time and labor.

To this end my invention consists, in connection with the truck-frame, the life-guard, and the springs interposed between the truck-frame and life-guard for the purpose of forcing and holding the life-guard down, of an opening and closing or collapsible support or toggle link or joint in the supporting connection of the life-guard. When this collapsible support or toggle-joint is extended or straight, it causes the life-guard to be supported at its normal height, while at the same time it may be easily and quickly pulled or moved by the car driver or operator from its straight or extended position, and thus by its collapsing or closing or flexing permit the

life-guard to be suddenly and surely lowered, by its own gravity and by the interposed springs, to its required position in time of danger.

My invention further consists in providing the supporting connection of the life-guard with a disengageable coupling or joint to enable the parts of the connection to be readily separated or disengaged when it is desired to drop the life-guard upon the ground for the purpose of removing the wheels, and thus save the time and labor of removing the bolts extending through the life-guard. The springs interposed between the life-guard and truck-frame coöperate with the collapsible support or toggle to keep the same normally extended or from accidentally closing under the jolting of the car, and they coöperate also with the detachable coupling to prevent accidental disengagement of its parts.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is an enlarged detail view in side elevation. Figs. 3 and 4 are detail perspective views illustrating the detachable joint or coupling in the supporting connection of the life-guard. Fig. 5 is a detail perspective view of the toggle link or joint with which the supporting connection of the life-guard is provided for the purpose of enabling it to be quickly lowered into operative position, and Fig. 6 is a detail top view of the same.

In the drawings similar letters of reference indicate like parts in the several figures.

In the drawings, A represents the body or platform of a street-car, B the truck-frame, and C the wheels. The car and its truck may be of any suitable kind or construction known to those skilled in the art and need no detailed description, as my invention is equally applicable to any form of truck or street-car.

D is the life-guard. This part may also be of any suitable construction now commonly in use.

F F are brackets secured to the truck-frame B by bolts *ff* and from which brackets the life-guard is supported.

G G are hangers or brackets secured to the life-guard D by bolts *g g*. The brackets G are each furnished with a central vertical slot or opening *g'* and a transverse slot or

opening g^2 to admit the oblong or T-shaped head h of the supporting bolt or connection H of the life-guard and permit the same to be turned in the bracket G to enable the two parts H and G to be coupled or uncoupled, as required. To insure the two parts H and G of the coupling remaining in their engaged position, as illustrated in Fig. 2, I provide the hanger G with curved seats g^3 to receive the oblong or T head h of the connecting-bolt H.

K is the collapsible support which is interposed in the supporting connection between the life-guard and truck-frame. It preferably consists of a toggle joint or link.

The bracket F is provided on its upper side with lugs or ears f' , to which are pivoted the lower members k of the toggle link or joint K, and the upper members k' of the toggle link or joint are pivotally connected to the life-guard-supporting connection or bolt H, this being done through the medium of an interposed cross-bar k^2 , extending between and pivoted to the link members k' at their upper ends and through which the supporting-bolt H extends. At its upper end the supporting-bolt H is threaded and provided with a nut h' , which bears against the cross-bar k^2 . The lower and upper members k of the toggle link or joint K are pivoted or hinged together at k^3 , and when the toggle link or joint is extended or straight the meeting shoulders k^4 k^5 of the links fit square one upon another, and thus form a firm support for the life-guard. Near its middle the toggle-joint K is provided with an ear k^6 , to which the connecting rod or link m , leading to the operating-lever M, is attached, so that the driver by pulling on the lever M can quickly and easily pull the links of the toggle past their center of support and thus permit the links of the toggle to close together or toward each other and the life-guard thus to be lowered into its operative position, as required. When the toggle-joint is thus flexed past the center through the operating-lever M, the life-guard drops by its own weight, and it is also forced and held down by the spring N, surrounding the supporting connection or bolt H and interposed between the brackets F and G. The interposed springs N also keep the parts of the toggle-joints K under constant pressure, so that there is no danger of their being accidentally flexed or closed past their center by the jolting motion of the car. The springs N also prevent any rattling movements of the life-guard or its connections with the truck-frame. The springs N also serve to keep the detachable coupling or joint between the two parts H and G of the supporting connection for the life-guard in proper engagement with each other, as illustrated in Fig. 2, and prevent the parts of this joint from becoming accidentally disengaged by the jolting of the car.

I have illustrated in the drawings and hereinabove described the preferred and what I

believe to be the best form and construction of collapsible support or toggle-joint for use in combination with the life-guard and truck-frame to enable the life-guard to be easily and instantaneously lowered into operative position, and also the preferred and what I believe to be the best form of detachable coupling or joint to enable the life-guard to be dropped upon the ground when required; but it will be understood by those skilled in the art that the construction of these parts may be varied without departing from the principle of my invention.

It perhaps should be stated that to turn the bolt H one-quarter around, so that its head h will pass through the vertical slot or opening g' , the life-guard is lifted or pried up sufficiently to relieve the bolt H of pressure and permit its head h to be disengaged from the curved seat g^3 .

I claim—

1. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame and serving when in its extended position to sustain the weight of the life-guard, and the weight of the life-guard itself operating to collapse said support the moment it is flexed or moved out of its extended position, substantially as specified.

2. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, said collapsible support consisting of a toggle-joint adapted when extended or straight to hold the life-guard at its normal height, and when flexed or closed to drop the life-guard into its operative position, the weight of the life-guard itself operating to collapse said support when it is flexed or moved out of its extended position, substantially as specified.

3. In a street-car, the combination with the truck-frame and life-guard, of a supporting connection between the truck-frame and life-guard provided with a detachable coupling or joint, one of the parts or members of said coupling or joint being rotatable in respect to the other, and adapted to pass through the other when turned into a certain position, substantially as specified.

4. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, said collapsible support consisting of a toggle-joint adapted when extended or straight to hold the life-guard at its normal height, and when flexed or closed to drop the life-guard into its operative position, and a detachable coupling or joint consisting in a bracket secured to the life-guard and provided with vertical and transverse slots or openings, and a supporting-rod connected to the truck-frame and provided with an oblong

or T-shaped head at its lower end, substantially as specified.

5. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, said collapsible support consisting of a toggle-joint adapted when extended or straight to hold the life-guard at its normal height, and when flexed or closed to drop the life-guard into its operative position, and a detachable coupling or joint consisting in a bracket secured to the life-guard and provided with vertical and transverse slots or openings, a supporting-rod connected to the truck-frame and provided with an oblong or T-shaped head at its lower end, and said bracket having also curved seats to receive the oblong or T head of the supporting-rod, substantially as specified.

6. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, and a spring interposed between said truck-frame and life-guard, and serving to keep said collapsible support normally in its extended position and the weight of the life-guard and said spring operating to collapse said support when it is flexed or moved out of its extended position, substantially as specified.

7. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, said collapsible support consisting of a toggle-joint adapted when extended or straight to hold the life-guard at its normal height, and when flexed or closed to drop the life-guard into its operative position, and a spring between the life-guard and truck-frame and the weight of the life-guard and said spring operating to collapse said support when it is

flexed or moved out of its extended position, substantially as specified.

8. In a street-car, the combination with the truck-frame and life-guard, of a supporting connection between the truck-frame and life-guard provided with a detachable coupling or joint, and a spring between the life-guard and truck-frame to keep the parts of said detachable coupling or joint normally engaged, substantially as specified.

9. In a street-car, the combination with the truck-frame and life-guard of a collapsible support interposed in the supporting connection between the life-guard and truck-frame, said collapsible support consisting of a toggle-joint adapted when extended or straight to hold the life-guard at its normal height, and when flexed or closed to drop the life-guard into its operative position, and a detachable coupling or joint consisting in a bracket secured to the life-guard and provided with vertical and transverse slots or openings, and a supporting-rod connected to the truck-frame and provided with an oblong or T-shaped head at its lower end, and a spring between the truck-frame and life-guard, substantially as specified.

10. In a street-car, the combination with a truck-frame and life-guard, of a bracket F secured to the truck-frame, and provided with an ear or lug f' , the bracket G secured to the life-guard and provided with a vertical opening or slot g' and a transverse slot or opening g'' , and curved seat g^3 , a supporting connection H having oblong or T head h , toggle link or joint K having pivotal cross-bar k^2 connected to said bolt H, spring N, operating-lever M and connection m , substantially as specified.

THOMAS H. LOVEJOY.

Witnesses:

H. M. MUNDAY,
S. C. CURTIS.