

(No Model.)

2 Sheets—Sheet 1.

A. J. THORNLEY.
LIFE GUARD FOR STREET CARS.

No. 574,833.

Patented Jan. 5, 1897.

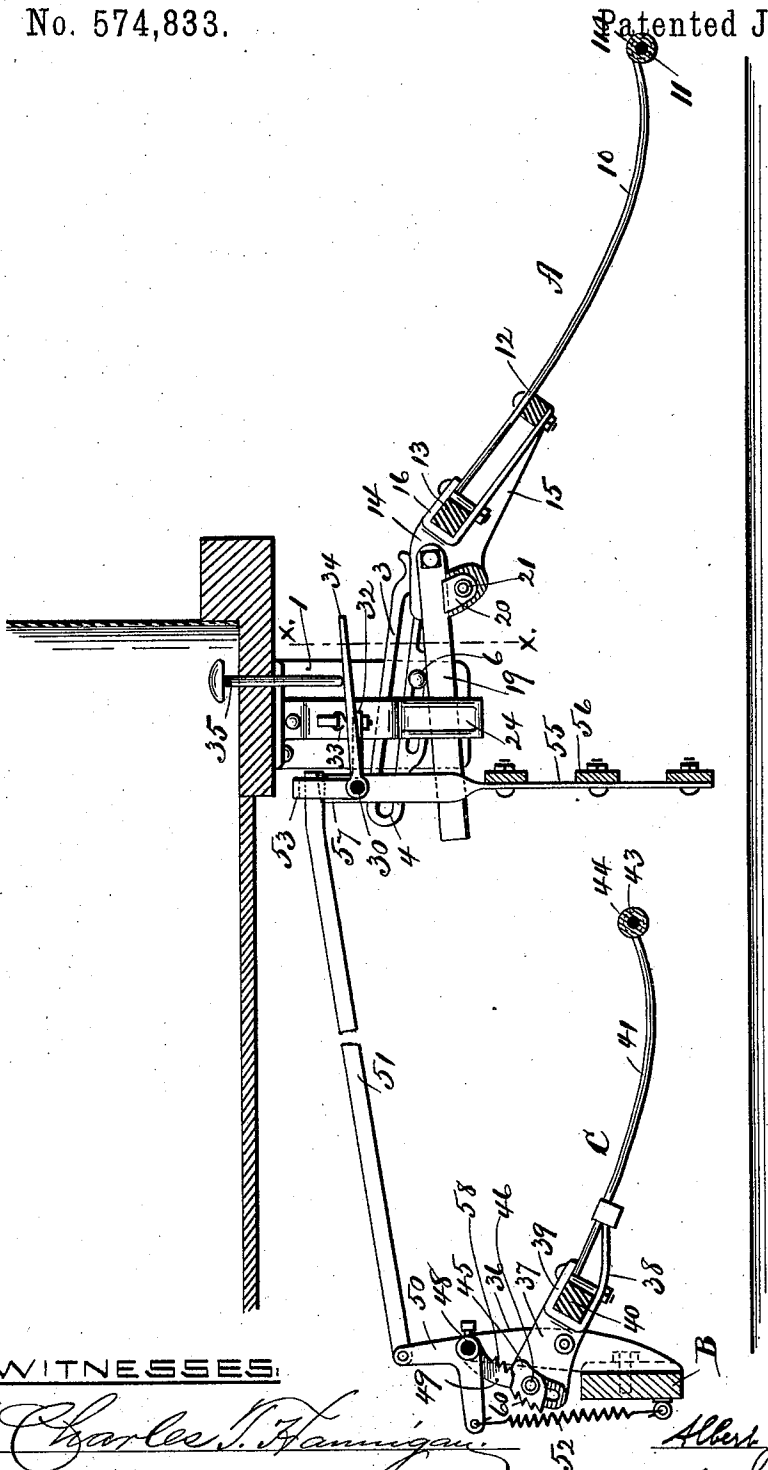


FIG. 1.

WITNESSES:

Charles T. Hannigan
Ira L. Fish

INVENTOR.

Albert J. Thornley
By Wilmarth & Thurston
Atty.

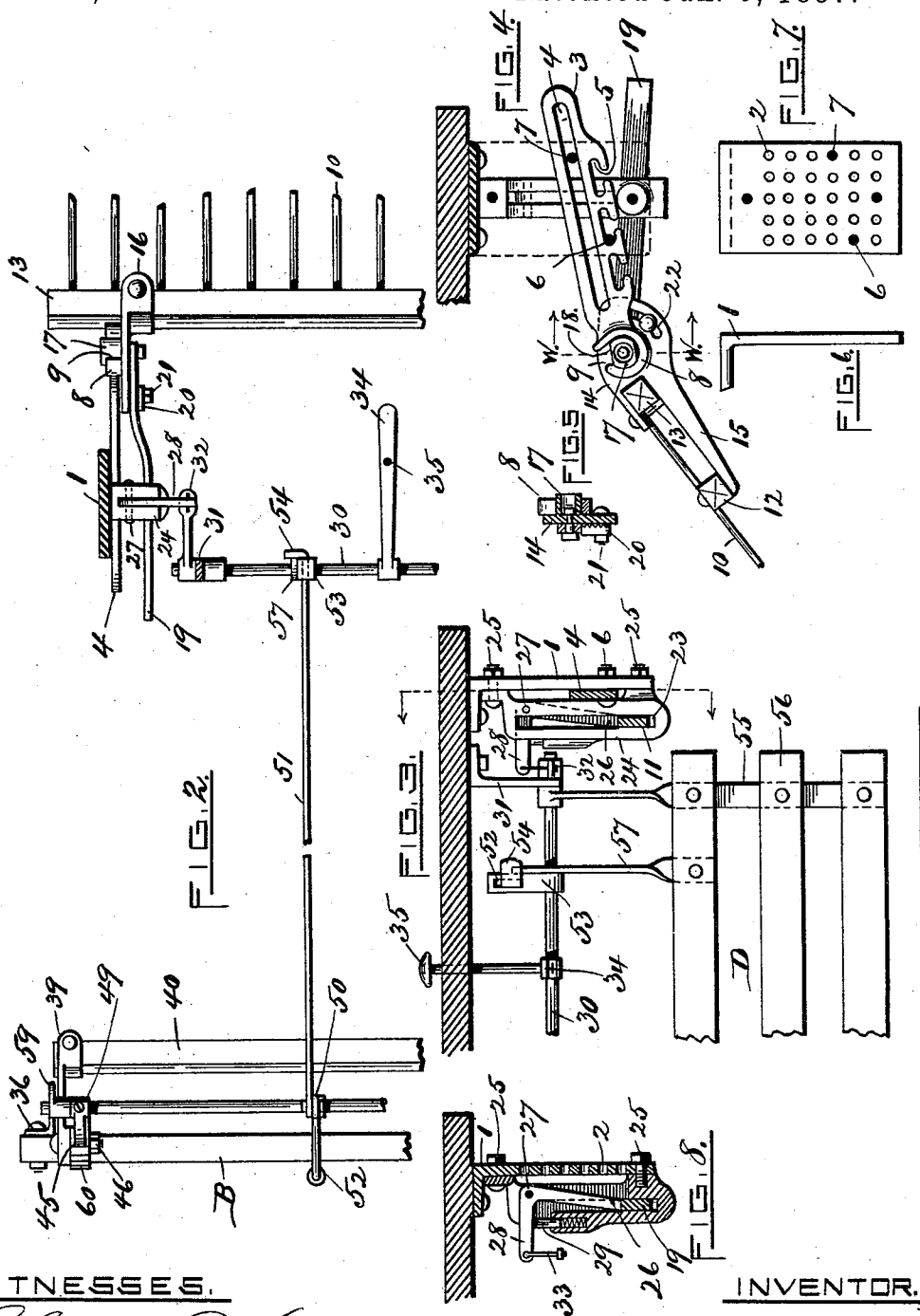
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2 Sheets—Sheet 2.

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LIFE GUARD FOR STREET CARS.

No. 574,833.

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WITNESSES.

Charles T. Hamigan
Isaac L. Fick

INVENTOR.

Albert J. Thornley
Jy. Walmarth E. Thurston
Atty.

UNITED STATES PATENT OFFICE.

ALBERT J. THORNLEY, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO THE
CONSOLIDATED CAR FENDER COMPANY, OF PROVIDENCE, RHODE ISLAND.

LIFE-GUARD FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 574,833, dated January 5, 1897.

Application filed January 22, 1896. Serial No. 576,372. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. THORNLEY, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Life-Guards for Street-Cars; and I hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

The present invention relates to safety devices for street-cars, and has for its object the providing of simple and efficient means for preventing injury to a person who is struck by or falls under the car. The appliances for accomplishing this object comprise a guard or fender pivoted to the front end of the car and held normally above the track and a second guard located under the car and in front of the wheels and also held normally above the track, means whereby both guards may be dropped by the motorman, and also means whereby the wheel-guard is automatically dropped whenever a person gets under the car back of the front guard. The wheel-guard is locked in its lower position when dropped either by the motorman or automatically.

The invention consists in certain features and combinations hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a sectional elevation of one form of safety device embodying the present improvements and showing so much of a car as is necessary to show the manner of attaching said devices. Fig. 2 is a plan view of the devices shown in Fig. 1. Fig. 3 is a sectional elevation on the line *x x*, Fig. 1. Fig. 4 is a sectional elevation on line *y y*, Fig. 3, and also showing a portion of the front guard. Fig. 5 is a sectional view on line *w w*, Fig. 4. Figs. 6 and 7 are front and side views of the supporting-bracket. Fig. 8 is a sectional view showing the latching device for holding the front guard.

Secured at each side of the car is a bracket or plate 1, provided with a number of holes 2. Arms 3, each provided with a long slot 4 and a series of short slots 5, are secured to

the plates 1 by means of bolts 6 and 7, which pass through said slots and holes, the bolt 6 bearing against the end of one of the short slots and thus serving to prevent any rearward movement of the arms 3. By shifting the bolts in the holes 2 the inclination or height of the arms 3 may be adjusted, and by shifting the arms 3 so that bolt 6 shall occupy different slots the arms 3 may be adjusted forward or back. Each of the arms 3 is provided at its front end with a bearing 8, which is cut away at 9, and which serves to support the front guard A.

The front guard A consists of a series of spring-rods 10, secured at their front ends to a cross-rod 11 and secured at their rear ends to the cross-bars 12 13. The rod 11 is provided with rubber rollers 110 between the rods 10. The bars 12 13 are secured to the plates 14, rod 12 being bolted to the extending arms 15 and bar 13 being clamped between the arms 15 and 16, as shown in Fig. 1. On the outer face of each of the plates 14 is a trunnion 17, flattened at 18, so that it may be inserted in the bearing 8 through the opening 9, and said flattened portion being so arranged that when the guard is in position the parts will be in the relation shown in Fig. 4, with the trunnion locked in the bearing.

The guard A may be readily removed when desired by turning it up until the flattened portions of the trunnions will pass through openings 9. To the inner face of one or both of the plates 14 is pivoted an arm 19, underlying which is a lug 20, adjustably secured to the plate 14 by means of a bolt 21, passing through a slot 22, formed in said plate, the engaging surfaces of the plate and lug being provided with interlocking corrugations to aid in holding the lug in place. The arm 19 extends through a slot 23, formed in a casting 24, secured to the plate 1 by means of bolts 25, and is held in the lower end of said slot by means of a catch 26, pivoted at 27 in said casting. The catch 26 is provided with a laterally-extending arm 28, which is engaged by spring-pressed bolt 29, mounted in casting 24, said bolt serving to keep the catch 26 in position. When the arm 19 is held down by catch 26, the lug 20 engages the under side of said

arm and holds the guard A in its normal elevated position, the height of the guard above the tracks being determined by the adjustment of the lug 20 on the plate 14, but when
5 the catch is withdrawn to release the arm 19 the guard drops upon the track.

The guard A may be turned up against the end of the car, if desired, without affecting the arm 19, the lug 20 swinging away from said
10 arm as the guard is raised and again engaging said arm immediately the guard is lowered to its normal position.

A rock-shaft 30 is mounted in hangers 31, secured under the car, and is provided at one
15 or both ends with an arm 32, connected by means of link 33 to the arm 28. At any convenient point in the length of the shaft 30 is secured an arm 34, on which rests a bolt 35, extending above the car-platform. By pressing
20 the bolt 35 the motorman rocks the shaft 30, and thus through the connections described operates the catch or catches 26 and drops the guard A onto the track.

Located directly in front of the car-wheels
25 is the cross-piece B, secured to which are the brackets 36, one at each side of the car. Pivoted to each bracket 36 is a plate 37, provided with the arms 38 39, between which is clamped the cross-bar 40, carrying the rear ends of the
30 spring-rods 41, which form the wheel-guard C. The front ends of the rods 41 are secured to the cross-rod 43, which is provided between said rods with rubber rollers 44. A lug 45 is adjustably secured to one or both of the plates
35 36 by means of a bolt 46, passing through a slot 47, formed in said plate, the engaging faces of said lug and plate being provided with interlocking corrugations. A rock-shaft 48 is pivoted in the brackets 36 and has secured
40 to one or both ends a catch 49, which engages the lug 45 and holds the guard C in its normal raised position, as shown in Fig. 1. Secured to the shaft 48 at any convenient point throughout its length is a bell-crank lever 50,
45 to one arm of which is pivoted the bar 51 and to the other arm of which is secured one end of a spring 52, the other end of which is secured to the cross-piece B, said spring tending to hold the catch 49 in engagement with
50 the lug 45. The forward end of the bar 51 is supported in a slot 52, formed in the end of an arm 53, secured to the rock-shaft, and the end of said bar is bent at right angles to form an offset or shoulder 54, as shown in Fig. 2.
55 Loosely pivoted on the shaft 30 is the apron D, consisting of the hangers 55 and slats 56. An arm 57 is secured to said apron and its free end is located just behind the offset 54.

When the shaft 30 is rocked as above described to drop the guard A, the arm 53 engages the offset 54 and draws the bar 51 forward, thus rocking shaft 48 to move the catch 49 out of engagement with lug 45 and drop
60 the guard C. If the apron D is rocked by coming in contact with any object, the arm 57 engages the offset 54 and drops the guard C.

When the guard C is dropped, either by the

motorman or automatically, it is locked in position by means of a shoulder or shoulders in the form of one or more teeth 58, formed
70 on the catch 49, which engages a shoulder or shoulders in the form of one or more teeth 60, formed on the lug 45. The shaft 48 is provided with handles 59 at each end for rocking said shaft to unlock the guard C, so that it
75 may be raised to its normal position.

The operation is apparent from the above description. If the motorman sees a person upon the track, he drops the guards A and C,
80 and should the guard A by any possibility ride over said person or should he be knocked down and roll under the car the guard C will save him from any injury. Should a person fall under the car back of the guard A, then
85 he will come into contact with the apron D, which is preferably placed directly in front of the guard C, and said guard will be automatically dropped without affecting the guard A and said person will be saved from injury.

What I claim as my invention, and desire
90 to secure by Letters Patent, is—

1. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism for dropping said guards, and means for dropping one of said
95 guards independently of the other, substantially as described.

2. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism operative from the platform for dropping said guards, and means automatically operated by an object on the track for dropping said wheel-guard independently of said front guard, substantially as described.
100

3. The combination with a front guard normally raised, and a wheel-guard normally raised, of a mechanism for dropping said guards, and means for locking one of said guards in its lower position, substantially as described.
105

4. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism for dropping said guards, means for dropping said wheel-guard, and means for locking said wheel-guard in its
110 lower position, substantially as described.

5. The combination with a front guard normally raised, and a wheel-guard normally raised, of a mechanism operative from the car-platform for dropping said guards, and means
115 independent of said front guard for automatically dropping said wheel-guard, substantially as described.

6. The combination with a front guard normally raised and a wheel-guard normally raised, of a mechanism operative from the car-platform for dropping said guards, an apron located behind said front guard and in front of said wheel-guard for automatically dropping
120 said wheel-guard independently of said front guard, substantially as described.

7. The combination with a front guard and a wheel-guard, of a catch for holding said front guard raised, an independent catch for hold-

ing said wheel-guard raised, a mechanism for disengaging said catches and means for disengaging one of said catches independently of the other, substantially as described.

5 8. The combination with a front guard and a wheel-guard, of a catch for holding said front guard raised, an independent catch for holding said wheel-guard raised, a mechanism operative from the car-platform for disengaging
10 said catches, and means for automatically disengaging said wheel-guard catch, substantially as described.

9. The combination with a front guard and a wheel-guard, of a catch for holding said front
15 guard raised, an independent catch for holding said wheel-guard raised, a rock-shaft connected to disengage said catches, and a swinging apron connected to disengage said wheel-guard catch, substantially as described.

20 10. The combination of a plate adapted to be secured to the car, and provided with a series of holes, an arm provided with slots, bolts passing through said slots and holes, and a bearing in said arm, whereby said arm and
25 bearing may be adjusted, substantially as described.

11. The combination of a guard comprising plates provided with trunnions, bearings for said trunnions, a rearwardly-extending
30 arm pivoted to one of said plates, a lug on said plate engaging said arm, and a catch also engaging said arm, substantially as described.

12. The combination of a guard comprising plates provided with trunnions, bearings
35 for said trunnions, rearwardly-extending arms, catches for also engaging said arms, and means for disengaging said catches, substantially as described.

13. A guard comprising plates provided
40 with extending arms, cross-bars secured to said arms, resilient rods secured to said cross-bars, and a cross-rod to which the forward ends of said rods are secured, substantially as described.

45 14. The combination with a guard of a movable catch independent of said guard for holding said guard raised, and also locking said guard in its lower position, and means for operating said catch to drop said guard,
50 substantially as described.

15. The combination with a guard of a catch for holding said guard raised, said guard and said catch being provided with engaging shoulders for locking said guard in

its lower position, and means for disengaging
55 said catch to drop said guard, substantially as described.

16. The combination with a guard of a pivoted catch for holding said guard raised, a tooth on said guard, a tooth on said catch,
60 said teeth being arranged to engage when said guard is dropped, and means for rocking said catch on its pivot, substantially as described.

17. The combination with a guard of a
65 catch for holding said guard raised, an adjustable lug on said guard engaging said catch, and means for disengaging said lug and catch, substantially as described.

18. The combination with a guard of a
70 catch for holding said guard raised and also for locking said guard in the lower position, of means for disengaging said catch from the car-platform, and means for disengaging said catch automatically, substantially as de-
75 scribed.

19. The combination with a guard of a catch for holding said guard raised, means for disengaging said guard and catch comprising a bar, a rock-shaft, an arm secured to
80 said shaft and engaging said bar for operating the same to disengage said guard and catch, means for rocking said shaft from the car-platform, and means for automatically operating said bar, substantially as described.
85

20. The combination with a guard of a catch for holding said guard raised, means for disengaging said guard and catch comprising a bar, means for operating said bar
90 from the car-platform to disengage said guard and catch, a pivoted apron, an arm operated by said apron and engaging said bar for operating the same to disengage said guard and catch, substantially as described.

21. The combination with a guard of a piv-
95 oted catch for holding said guard raised, a bar for operating said catch provided with an offset at its free end, a rock-shaft, an arm secured to said rock-shaft and supporting the free end of said bar, means for rocking said
100 shaft, and a pivoted apron provided with an arm for engaging said offset, substantially as described.

ALBERT J. THORNLEY.

Witnesses:

W. H. THURSTON,
H. R. ABBOTT.