

No. 724,766.

PATENTED APR. 7, 1903.

C. A. WILLARD.  
STREET CAR SAFETY GUARD.  
APPLICATION FILED DEC. 6, 1902.

NO MODEL.

FIG. 1

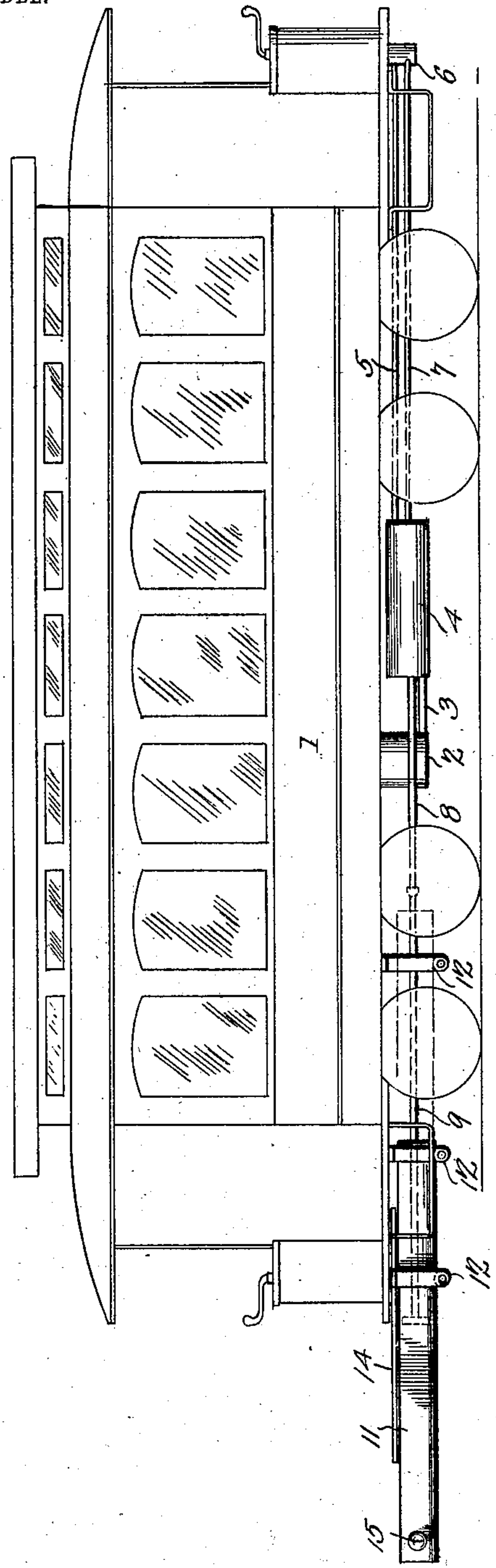


FIG. 2

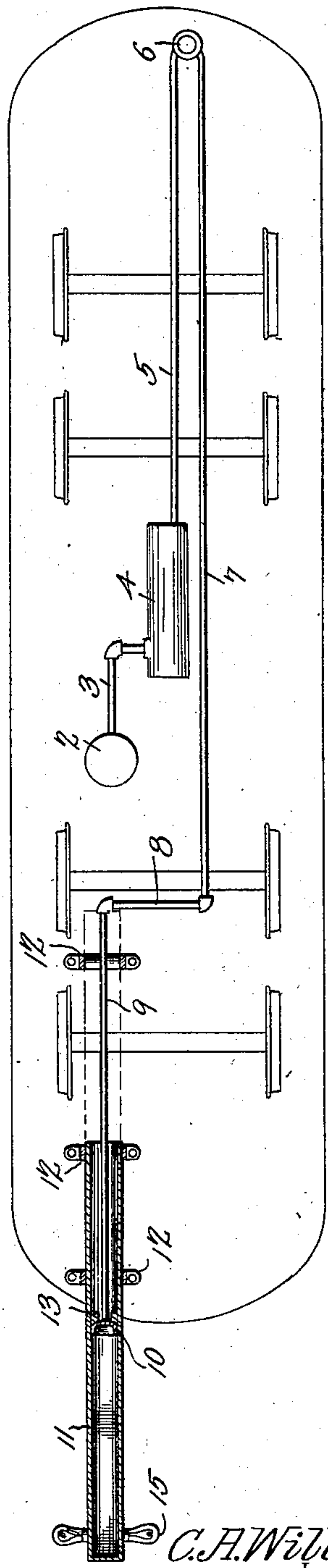
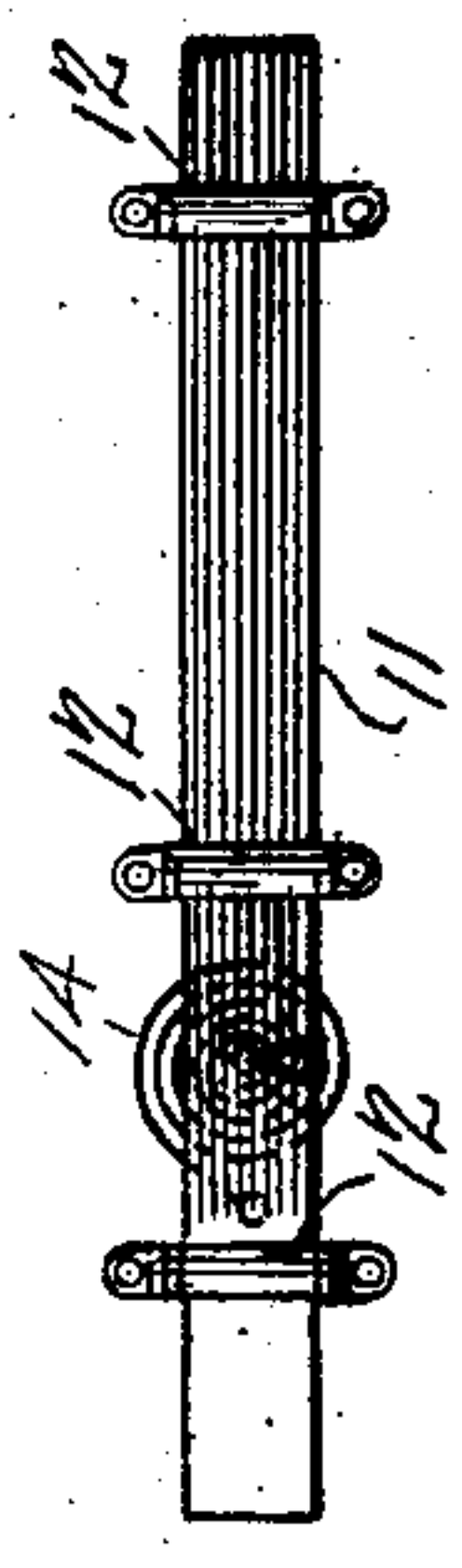


FIG. 3



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# UNITED STATES PATENT OFFICE.

CHARLES ABNER WILLARD, OF ST. LOUIS, MISSOURI.

## STREET-CAR SAFETY-GUARD.

SPECIFICATION forming part of Letters Patent No. 724,766, dated April 7, 1903.

Application filed December 6, 1902. Serial No. 134,166. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES ABNER WILLARD, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Street-Car Safety-Guard, of which the following is a specification.

My invention relates to safety-guards for street-cars, and has for its object to produce a device of this character which will be simple of construction and operation, may be readily applied to the cars, and which may be manipulated by the motorman to prevent passengers when alighting from passing around the rear of the car in front of a car approaching on the other track.

To these ends the invention comprises in a car safety-guard the combination, with a movable member adapted to be projected beyond the car, of a fixed member and means for introducing a fluid under pressure between the fixed and movable members for moving the latter.

The invention further comprises the details of construction and combination of parts hereinafter fully described.

In the accompanying drawings, Figure 1 is a side elevation of a car having my improvement applied thereto. Fig. 2 is a bottom plan view of the same. Fig. 3 is a top detail plan of the guard and its retracting-spring.

Referring to the drawings, 1 indicates the car, having secured to its bottom in any suitable manner an air-compressor 2, connected by a pipe 3 with an accumulating chamber or cylinder 4.

5 is a pipe extending from the cylinder 4 to the front of the car, where it is connected with a suitable valve 6, adapted to be manipulated by the motorman.

7 is a pipe extending from the valve 6 rearward longitudinally of the car and connected with a short transverse pipe 8, which latter is in turn connected with a hollow fixed piston 9, secured to the bottom of the car in any suitable manner which will maintain the same immovable with relation to the car.

10 is a cup-shaped head mounted on the end of the hollow piston-rod 9.

11 is a movable member or cylinder slidably mounted in bearings 12 in the form of horizontal antifriction-rollers sustained by

suitable bearings projecting vertically downward from the bottom of the car. This member 11 is slidably mounted upon the piston-head 10, which latter fits the internal walls of the cylinder in an air-tight manner.

13 is a lug suitably formed on the interior of the cylinder at a point substantially equidistant between its ends. This lug is adapted to act as a stop for engaging the head of the piston and limiting the outward movement of the movable member 11.

14 is a spiral spring attached at its center to the cylinder 11 in any suitable manner and having its free end similarly attached to a lug or projection on the bottom of the car.

15 represents signal-lamps mounted in any suitable manner upon the lateral faces of the movable member near its outer end, the object of these lamps being to indicate the guard to the passenger at night.

The operation of the device is as follows: The movable member being retracted to its normal position beneath the car, as indicated by dotted lines in Fig. 2, the cup-shaped head 10 of the piston will lie snugly against the inner end wall of the member. With the parts in this position if a passenger signals to alight from the car and a car is approaching on the adjacent track the motorman will operate the valve 6 to establish connection between the pipes 5 and 7 and the compressed air will flow from the accumulating-chamber 4 through pipes 5, 7, and 8 to the hollow piston-rod 9 and be delivered into the movable member between its end wall and the cup-shaped head of the piston, thus projecting the member rearward beyond the end of the car, at the same time winding the spring 14 to put it under tension. After the car on the adjacent track has passed the motorman moves the valve slightly to permit the escape of the air from the cylinder, when the spring will return the same to its normal position.

It is to be understood that I do not limit or confine myself to the details of construction herein shown and described, as various minor features may be made therein without departing from the spirit or scope of my invention, the essence of which resides in mounting upon the bottom of a car a movable member adapted to be projected beyond the car through the medium of a fluid under pressure.



Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car safety-guard, the combination  
5 with a movable member adapted to be projected beyond the car, of a fixed member, and means for introducing a fluid under pressure between the fixed and movable members for moving the latter and mechanism operatively  
10 connected with the movable member for returning the same to normal position.

2. In a car safety-guard, the combination with a movable cylinder adapted to be projected beyond the car, of a fixed piston having its head mounted in the cylinder, and  
15 means for introducing fluid under pressure between the piston-head and end of the cylinder.

3. In a car safety-guard, the combination  
20 with a movable cylinder mounted in anti-friction-guides beneath the car and adapted to be projected beyond the car, of a fixed piston having its head mounted in the cylinder, and means for introducing a fluid under pressure  
25 between the piston-head and cylinder end.

4. In a car safety-guard, the combination with a movable member adapted to be projected beyond the car, of a fixed member,  
30 means for introducing a fluid under pressure between the fixed and movable members for moving the latter, and means for automatically returning said member to normal position.

5. In a car safety-guard, the combination  
35 with a movable member adapted to be projected beyond the car, of a fixed member, means for introducing a fluid under pressure

between the fixed and movable members for moving the latter, and a spring for returning  
40 said member to normal position.

6. In a car safety-guard, the combination with a movable cylinder adapted to be projected beyond the car, of a fixed piston mounted therein and having a hollow piston-rod,  
45 and means for introducing a fluid under pressure through the rod between the piston-head and cylinder end.

7. In a car safety-guard, the combination with a movable cylinder mounted in anti-  
50 friction-guides beneath the car and adapted to be projected beyond the car, of a fixed piston mounted in the cylinder and having a hollow piston-rod, means controlled by the operator for introducing a fluid under pressure  
55 through the rod between the piston and cylinder for projecting the latter and a spring for returning the same to normal position.

8. In a car safety-guard, the combination with a movable cylinder adapted to be projected  
60 beyond the car, of a fixed piston mounted therein and having a hollow piston-rod, an air-compressor, a compressed-air accumulator communicating therewith, valve-controlled means for conducting air from the accumulator  
65 and introducing it through the hollow rod between the piston and cylinder for projecting the latter, and a spring for returning the same to normal position.

In testimony that I claim the foregoing as  
70 my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES ABNER WILLARD.

Witnesses:

JOSEPHINE W. EWING,  
ANNA A. FASH.