

(No Model.)

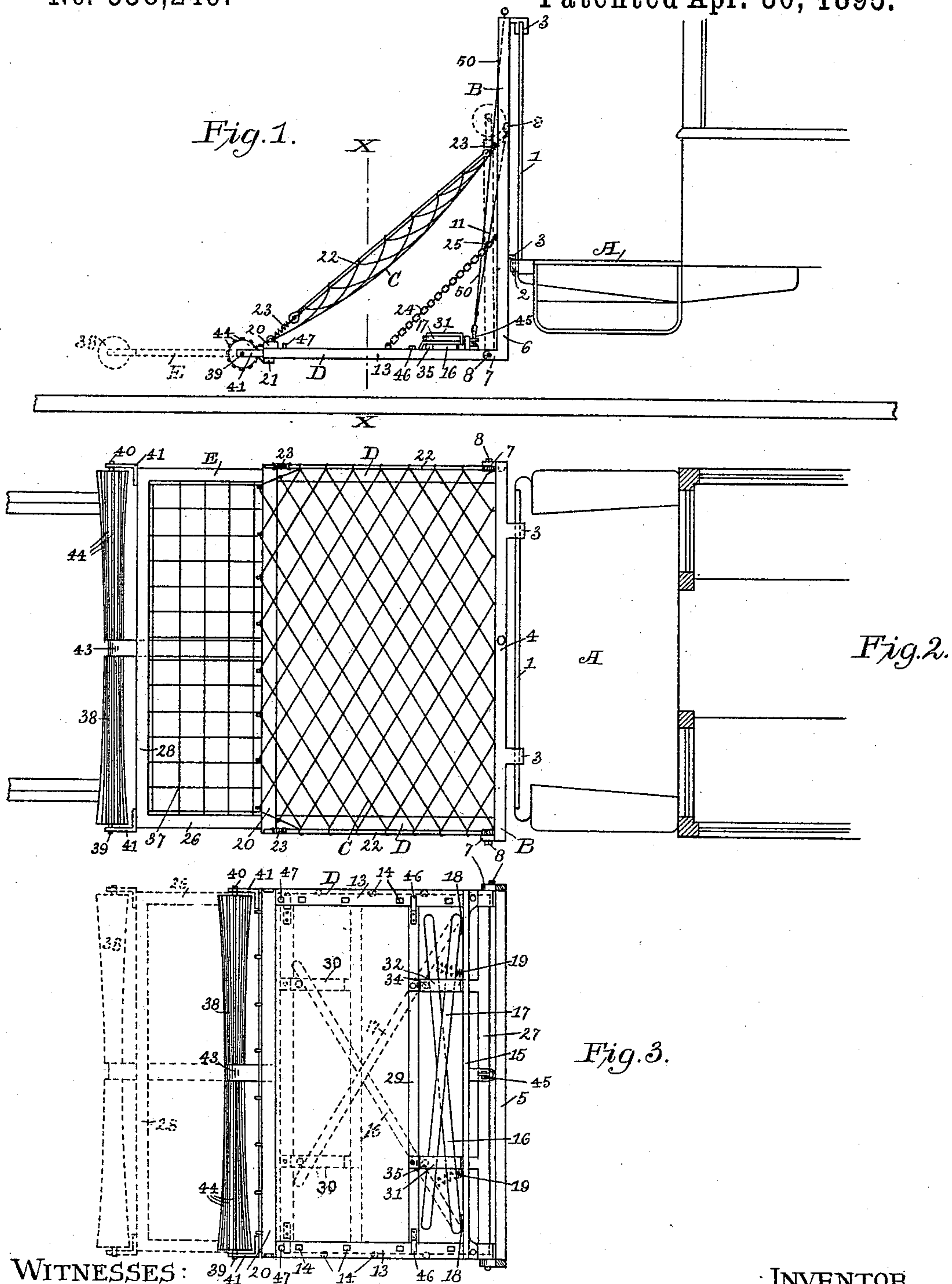
2 Sheets—Sheet 1.

J. P. FLEMING.

LIFE SAVING ATTACHMENT FOR STREET RAILWAY CARS.

No. 538,249.

Patented Apr. 30, 1895.



WITNESSES:

John W. Fisher.  
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ATTORNEY.

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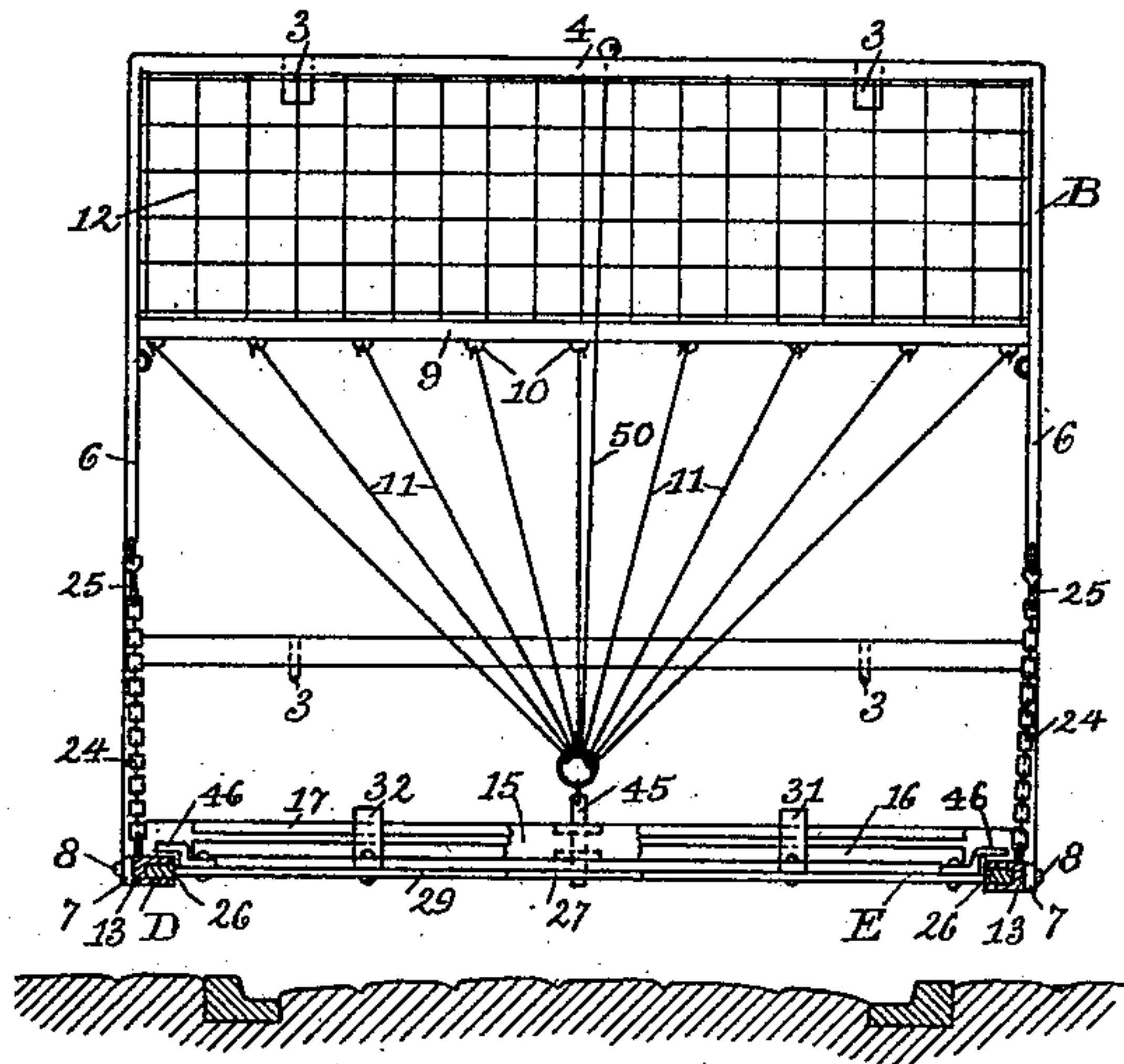


Fig. 4.

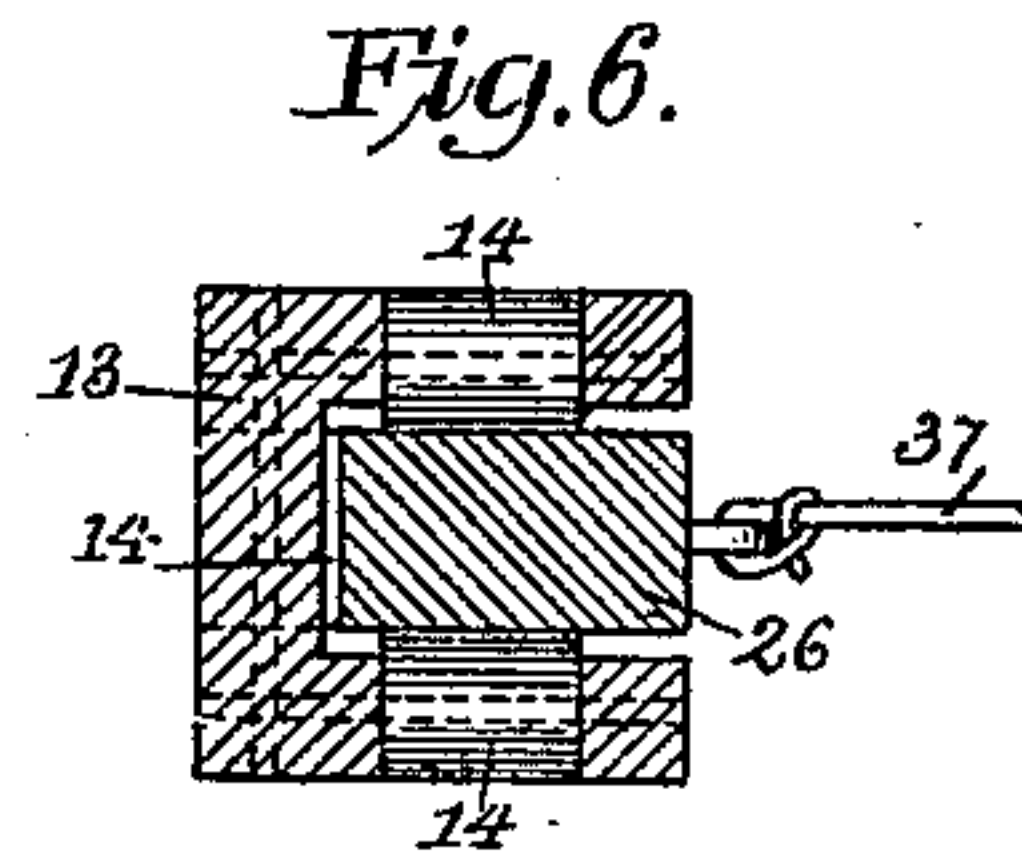


Fig. 6.

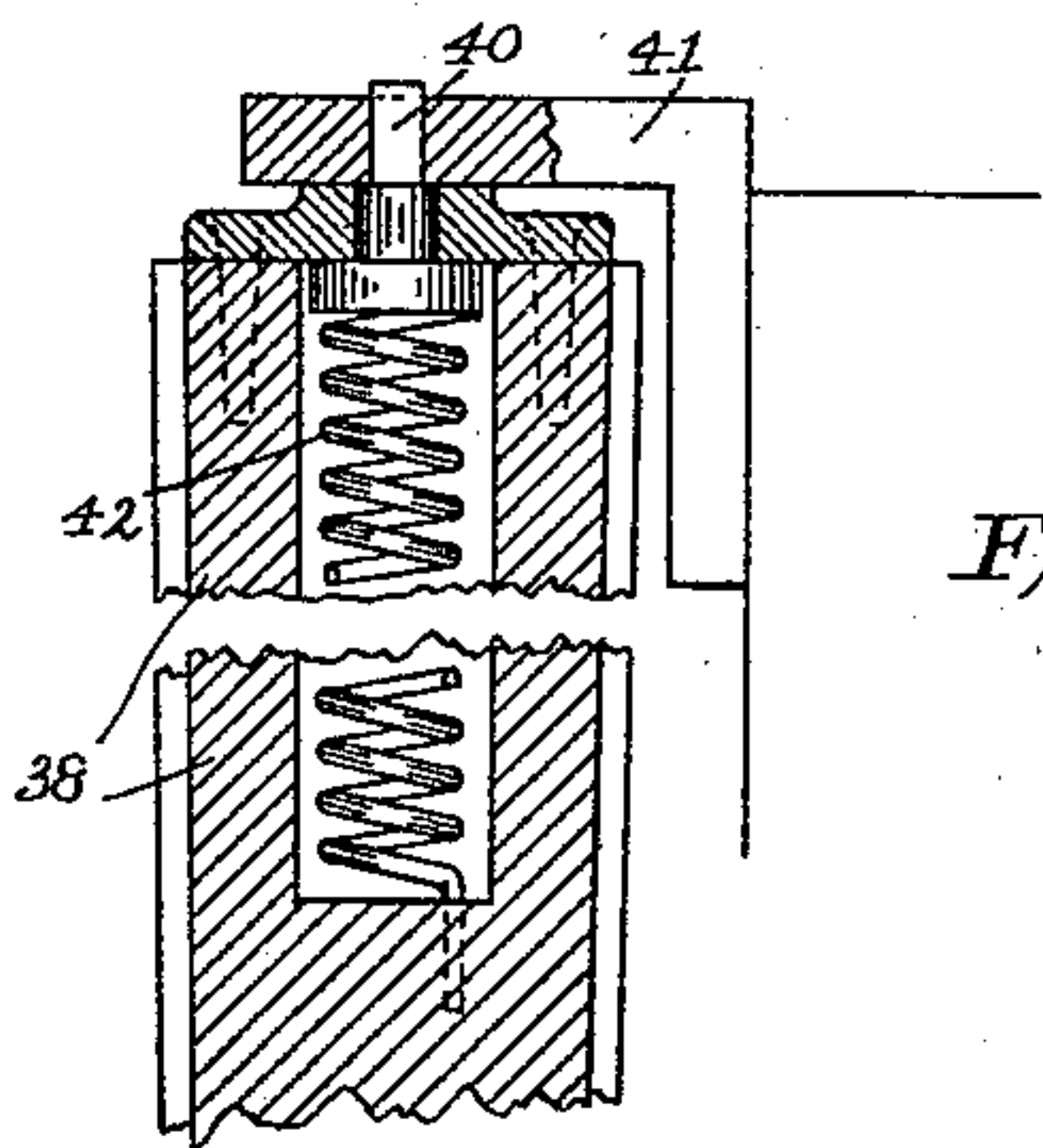


Fig. 7.

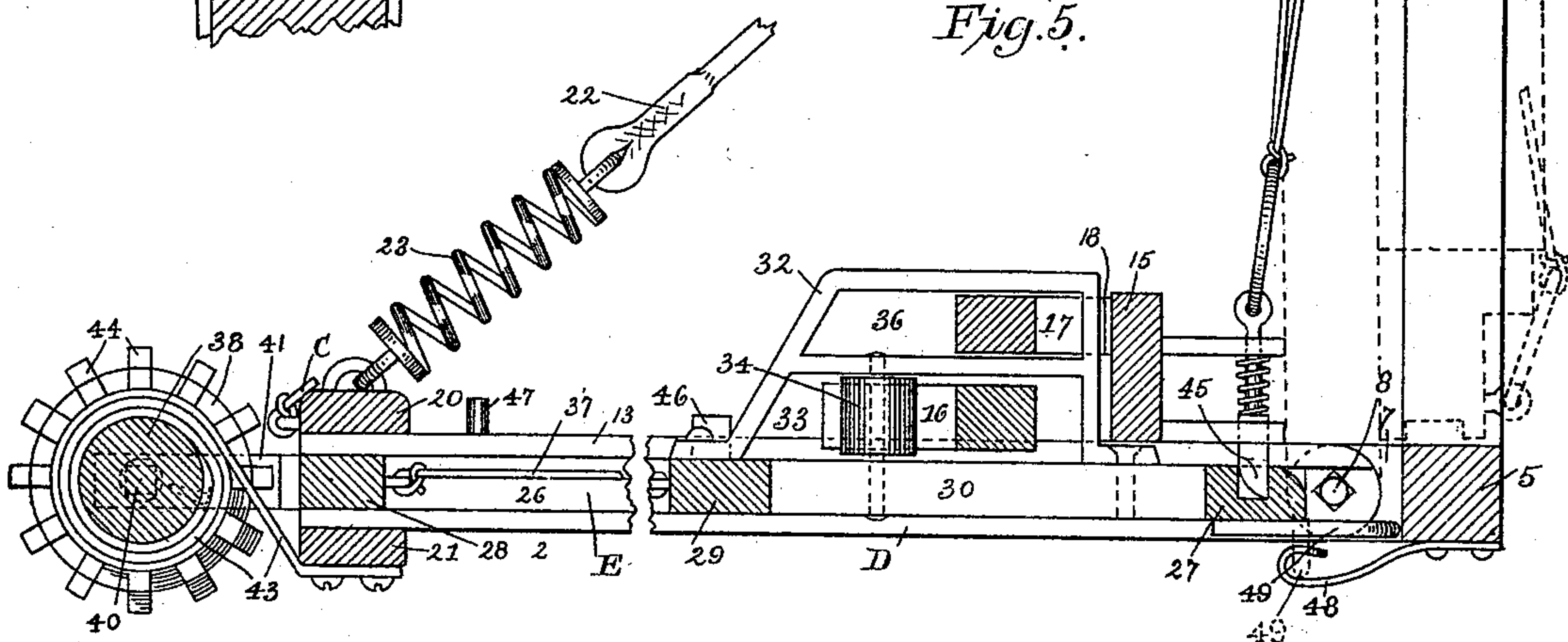


Fig. 5.

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# UNITED STATES PATENT OFFICE.

JAMES P. FLEMING, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO  
MICHAEL F. SMITH, OF SAME PLACE.

## LIFE-SAVING ATTACHMENT FOR STREET-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 538,249, dated April 30, 1895.

Application filed January 4, 1894. Serial No. 495,656. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES P. FLEMING, of the city and county of Albany, in the State of New York, have invented new and useful Improvements in Life-Saving Attachments for Cars on Street-Railways, of which the following is a specification.

My invention relates to life-saving appliances for cars used on street-railways; and the object of my invention is to provide efficient means for preventing injuries to persons, and avoiding the loss of life to pedestrians by reason of being run over by street-cars. This object I attain by the means illustrated in the accompanying drawings, which are herein referred to and form part of this specification.

In the aforesaid drawings, Figure 1 is a side elevation of part of an end of a street-railway car provided with my invention. Fig. 2 is a plan view, showing the sliding-frame in its protruded position. Fig. 3 is a plan view of Fig. 1, with the nettings removed to show underlying parts. Fig. 4 is a vertical section of Fig. 1 at the line X X, with inclined netting removed. Fig. 5 is a detached and enlarged longitudinal section of my invention, with portions broken out and the nettings removed therefrom. Fig. 6 is a detached and enlarged transverse section of the stationary and sliding frames; and Fig. 7 is a horizontal section of one end of the front roller of the sliding-frame.

As represented in the drawings, A designates the platform of a street-railway car of a well-known construction and provided with the usual dash-board, 1, and having sockets, 2, or other provision for attaching my invention thereto.

B designates the standing-frame of my attachment, the same being provided with hooks, 3, or other appliances, which, by engaging over the dash-board, or into said sockets, will secure said frame to the front of a car in such manner that it can be readily detached therefrom when occasion requires, but, when preferred, said frame and its attached parts may be permanently secured to the car. The standing-frame B consists of an upper bar, 4, a lower bar, 5, and two side-bars, 6, which form a rectangular frame; and each of said side-bars is provided with a lug, 7, for

forming hinge-joints, 8, at the lower part of said frame. An intermediate cross-bar, 9, is formed in said frame at a point that corresponds, or approximately corresponds to the height of the upper edge of an inclined netting, C, which forms part of my attachment. Said cross-bar is provided with a series of staples, 10, or other suitable means, for carrying a corresponding number of cords, 11, or other flexible connections, from the upper edge of the netting C. The space between the upper bar 4 and the cross-bar 9 is preferably filled with a netting, 12.

Hinged to the lugs 7, is a frame, D, which, to save confusion, is herein called the stationary-frame, and which, when the attachment is in an operative position, is arranged horizontally, but, when not required for immediate use, said stationary-frame can be swung, on the hinge-joints 8, into the vertical position indicated by dotted lines in Fig. 1. Said stationary-frame consists of side pieces, 13, which are made in a channel-form, as shown in Fig. 6, with the open side turned inwardly, and a series of anti-friction rollers, 14, are arranged in the channel of said side pieces for a purpose shortly explained. A cross-bar, 15, connects the rearmost ends of said side pieces together on their upper side, and a pair of swinging-arms, 16 and 17, are hinged to said cross-bar; the hinge-joints, 18, for said arms being arranged near the opposite sides of the frame D, so that said arms will cross each other as shown in Fig. 3. Near each hinge-joint 18, a spiral-spring, 19, is interposed between each swinging-arm and the cross-bar 15 for the purpose of forcing the free end of the corresponding swinging-arm to swing away from said cross-bar. At the outer end of said stationary-frame, a cross-bar, 20, is fixed to the upper side, and a second cross-bar, 21, is secured to the lower side of said frame. The lower edge of the netting C is attached to the cross-bar 20, and the upper edge of said netting is attached to the cords 11. The opposite edges of said netting are secured to a pair of stays, 22, which are connected—preferably by springs 23—to the cross-bar 20 and the side-bars 6. The netting C is arranged to belly downward, as shown in Fig. 1, for the purpose of forming a concave to receive the body of a



person without danger of throwing it away therefrom. Adjustable check-stays, 24, have one end secured to the stationary-frame D, and the opposite end is connected—by a snap-hook, 25, or other adjustable-device—to the side-bars 6, whereby the outer end of the stationary-frame can be adjusted to a required height and retained by said check-stays. The stays 22 and check-stays 24 are all flexible so as to not interfere with the turning up of the stationary-frame into the vertical position indicated by dotted lines in Fig. 1.

E designates a sliding-frame that is fitted to slide in the channels of the side-pieces of the stationary-frame D, the anti-friction rollers 14 allowing the sliding movement of the frame E to be effected with but a trifling amount of friction. The side-bars, 26, of said frame are connected together by a rear end-bar, 27, a front end-bar, 28, and a cross-bar, 29, so that said sliding-frame will be rectangular. Bars, 30, connect the end-bar 27 with the cross-bar 29, and the bars 30 carry brackets, 31 and 32, through which the swinging-bars 16 and 17 extend. The swinging-arm 16 passes through a lower opening, 33, in both of said brackets and its free end is fitted to bear against a friction-roller, 34, in said lower opening of bracket 32 and the free end of the swinging-arm 17 will bear against a like roller, 35, indicated by dotted lines in Fig. 3, located in the upper opening, 36, of the bracket 32. By means of the spring-actuated swinging-arms 16 and 17, the sliding-frame E, when released from the control of the spring-bolt shortly described, will be forced forward into the projecting position indicated by dotted lines in Fig. 3, and shown by full lines in Fig. 2. The sliding-frame E is provided with a netting, 37, which, by the forward movement of said sliding-frame, will be carried under the lower limbs of a person thrown upon the netting C and thereby the danger of the person being drawn under the car will be avoided. At the forward end of said sliding-frame, a roller, 38, is arranged to aid in moving the person onto the netting 37, and, for the purpose of moving the lower limbs of a person centrally on said netting, said roller is made concave in the direction of its length. One end of the later is provided with a pivot, 39, and the opposite end is fitted to revolve on a fixed stud, 40, that is retained in a stationary position in a lug, 41, fastened to the sliding-frame.

A torsion-spring, 42, is arranged in the roller 38 to effect a rotative motion of said roller while the sliding-frame is being pushed back (by hand,) to its retracted position. One end of said spring is fastened to the roller 38 and the other is fastened to the stationary stud 40, so that the rotative motion of the roller, produced by the outward movement of the sliding-frame, will effect the winding up of said spring to a high tension. The middle of the roller 38 is reduced in diameter to form a circumferential groove, and in said groove

one end of a flexible belt, 43, is secured. The other end of said belt is secured to the cross-bar of the stationary-frame D in such manner that an outward movement of the sliding-frame E will effect the unwinding of the belt 43 and rotate the roller 38 in a direction required to wind up the spring 42. Preferably the roller 38 is provided with a series of longitudinal ribs, 44, of rubber, felt, or other elastic material, or with a covering of like materials, in order to break the shock that might be produced by the roller being brought forcibly into contact with a person.

The stationary-frame D is provided with a spring-bolt, 45, that is fitted to engage with the sliding-frame E when the latter reaches its retracted position, and thereby said sliding-frame will be locked until the hold of said bolt is released therefrom. The cords 11 are connected to the upper end of the bolt 45, so that, when a body is thrown upon the netting C, the shock against said netting will throw a strain upon said cords to raise the bolt 45 from its engagement with the sliding-frame and leave the latter to be forced outward by the spring-actuated swinging-arms 16 and 17.

When the sliding-frame E has attained the extremity of its outward movement, lugs, 46, on the latter will take against stops, 47, on the stationary-frame, and prevent a farther movement of the sliding-frame. The standing-frame B is provided with a hook, 48, which projects forward from its lower bar, and the sliding-frame E has an eye or staple, 49, which, when the sliding-frame is swung into a vertical position, will engage automatically with said hook to prevent said sliding-frame from being projected outwardly from the stationary-frame if the bolt 45 should in any manner become disengaged from said sliding-frame. For the purpose of allowing the bolt 45 to be disengaged from its hold on the sliding-frame E by a person on the platform A, a hand-rope, 50, or other suitable connection, is fastened to said bolt and arranged within reach of a person standing on said platform.

My invention operates in the following manner: When a person is thrown upon the netting C, the strain occasioned thereby will cause the cords 11 to disengage the bolt 45 from the sliding-frame E, thereby leaving the latter free to be pushed outwardly by the swinging-arms 16 and 17. The outward movement of said sliding-frame will cause the roller 38 to be rotated by the unwinding of the belt 43, and the rotatory motion of the roller 38 forces the lower limbs of the person onto the netting 37, and thereby avoids the danger of the person being drawn under the car by the forward movement of the latter. When the sliding-frame E is pushed inward, to restore the attachment to its normal condition, the tension of the spring 42 will cause the roller 38 to be rotated in a direction to wind the belt 43 upon said roller, and thereby the attachment will be restored to a condition for a repetition of the operation described.



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

1. A life-saving attachment for cars, comprising a standing-frame consisting of a vertical portion and a horizontal portion hinged together as set forth, an inclined netting attached to said frame, a sliding-frame fitted to slide in the horizontal portion of said frame, a spring-bolt fitted to engage with and lock said sliding-frame in its retracted position; said spring-bolt being connected with said inclined netting, and a roller arranged at the outer end of said sliding-frame and flexibly connected to said standing-frame in such manner that the outward movement of said sliding-frame will cause a rotatory motion of said roller, as and for the purpose specified.

2. The combination of a standing-frame having a stationary hook fixed to its lower end, a horizontal frame hinged to the vertical portion of said standing-frame, and a sliding-frame fitted to slide in said horizontal frame and provided with an eye or staple arranged to

automatically engage with said hook, as and for the purpose specified.

3. In a life-saving apparatus, a roller containing a torsional-spring and arranged to rotate at the foremost end of the apparatus; said roller being provided with a series of longitudinal ribs of elastic material and having a flexible connection with a fixed point of the apparatus; whereby said roller will be rotated—in one direction by an outward movement of a sliding-frame and in the other direction by the resilient action of said spring—as and for the purpose specified.

4. In a life-saving apparatus for railway-cars, a roller arranged at the foremost end of said apparatus; said roller being concave in the direction of its length, as and for the purpose herein specified.

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Witnesses:

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WM. H. LOW.