Nov. 6, 1928. 1,690,720

R. LE R. COSBY

SAFETY BELT

Filed May 26, 1927 2 Sheets-Sheet 1

FIG. I

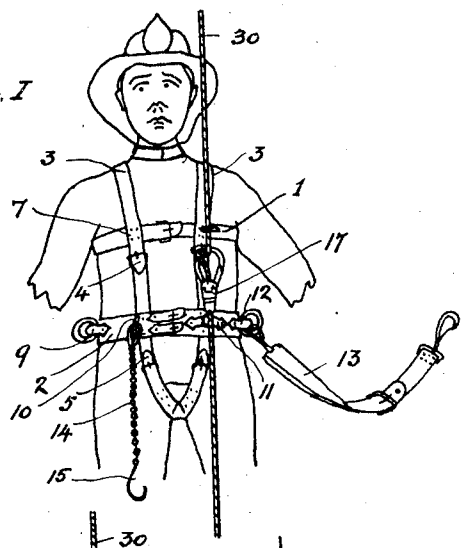


FIG. II

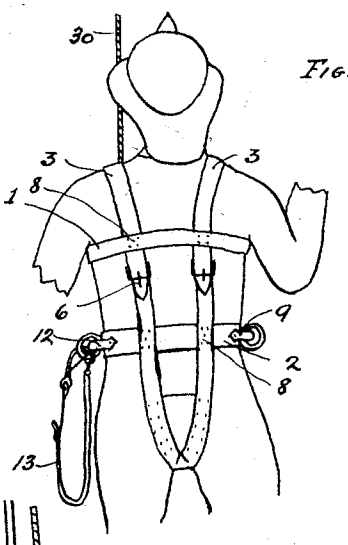


FIG. III

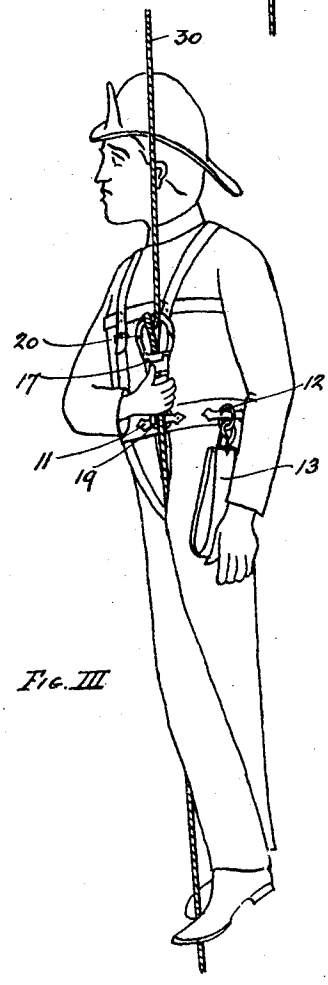
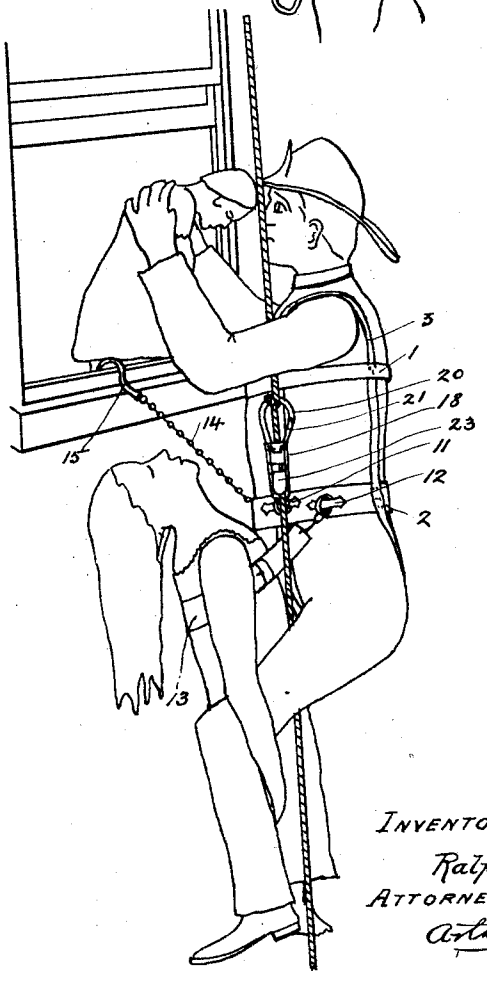


FIG. IV



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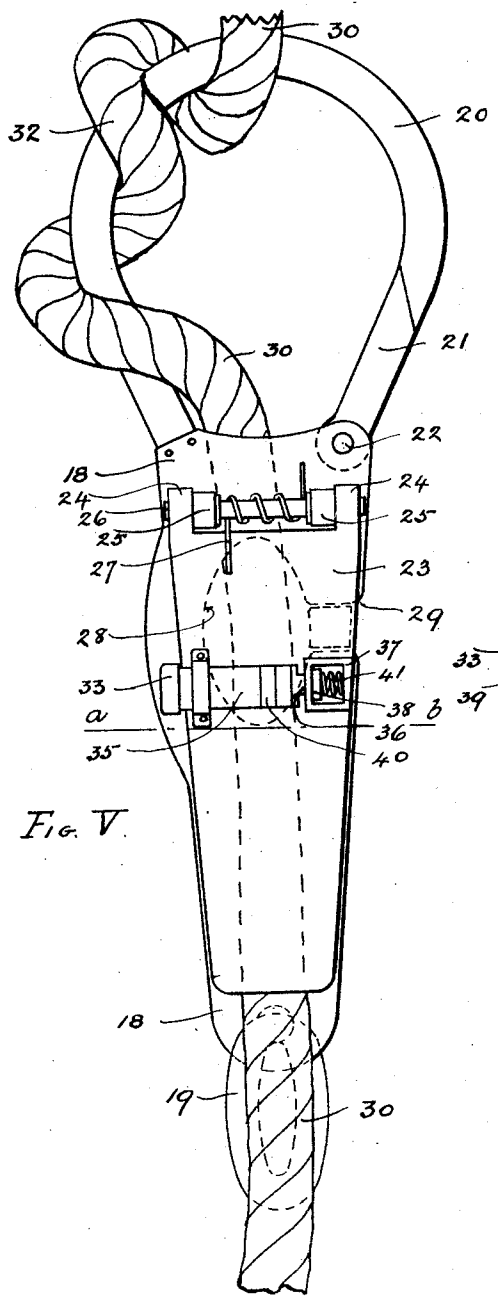
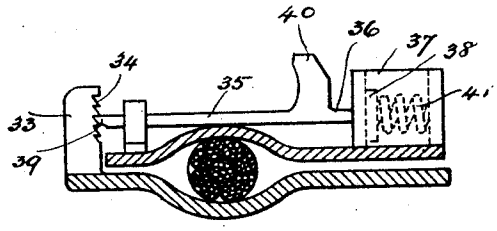


Fig. V.

Fig. VI.



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UNITED STATES PATENT OFFICE.

RALPH LE ROY COSBY, OF RICHMOND, VIRGINIA.

SAFETY BELT.

Application filed May 26, 1927. Serial No. 194,403

My invention relates to safety belts, such as are used by firemen, and by workers on the outside of tall buildings; and it has for its object the provision of improved means whereby the fireman may suspend himself from a rope to the outside of the building; and at the same time have both of his hands free from the rope and belt. Another object of my improved safety belt is to provide means whereby the fireman may lower himself from one height to another, and then remain in position, with both hands free for work. Yet another object of my improved safety belt is to provide means whereby the fireman may suspend about himself persons rescued from a fire, and bring them in safety to the ground.

In the drawings, which form a part of this specification, and in which like numerals refer to like parts: Figure I shows in front elevation a part of the body of a fireman with my safety belt in position; Figure II shows a rear view of the same; Figure III shows a fireman suspended by means of my belt from a rope; Figure IV shows the same fireman held by my safety belt on the rope opposite the window of a building; Figure V shows in detail that part of my belt by which the fireman is attached to the rope; and Figure VI is a cross section on line *a*—*b* in Figure V.

In Figure I, 1 is a belt which passes and is buckled around the fireman's body just below the armpits. A heavy belt 2 is buckled around the waist. The two belts 1 and 2 are connected and spaced by the shoulder straps 3, 3, which pass over the man's shoulders, down his back, under the crotch, and over the abdomen and chest. These shoulder straps are conveniently fastened in place by means of buckles 4, 5 and 6; the buckles 6 being shown on the man's back, in Figure II. The shoulder straps 3, 3, are riveted or sewn or both riveted and sewn to the belts 1 and 2; both in the front and at the back, as shown at 7 and 8.

Firmly secured to the belt 2 are heavy loops 9, 10, 11 and 12. To the two loops 9 and 12 is snapped an adjustable sling or belt 13. By means of this sling a person, or an inanimate object, may be supported from the fireman's belt 2, as shown in Figure IV. In Figure I the sling 13 is shown open and extended; while in Figures II and III it is shown caught up to the loop 12. On the loop 10 is shown fastened a chain 14 provided at its other end with a large hook 15, by means of which the fireman may attach himself to a window sill or other object to prevent swinging; as shown in Figure IV.

Attached to the loop 11 is the rope-clamp 17; see Figures I, III, IV, and V. Referring particularly to Figure V: 18 is a steel plate which is attached to the belt loop 11 by means of the steel ring 19. To the upper end of the steel plate 18 is attached a heavy snap hook 20, having the snap 21 pivoted at 22. Hinged upon the steel plate 18 is a second plate 23. The plate 23 terminates at its upper end in the hinge lugs 24, 24. The lugs 25, 25 are attached to the plate 18. There passes through the lugs 24 and 25 the hinge pin 26. If the lower end of the plate 23 is raised so that it is brought away from the plate 18 it will hinge about the pin 26. Upon its being released, it is caused to resume its former position on the plate 18 by the spring 27, which is coiled around the hinge pin 26. In the body of the plate 18 is an opening 28; and in the side of the plate 18 there is a gap 29 into the opening 28. Through this gap a rope may be passed into the opening 28. This rope-clamp, as far as described, is the same as the one now used in fire stations. This old form of rope-clamp is used in the following manner: The rope 30 is passed through the opening of the snap 21, and is then coiled around the steel loop 20. The rope 30 is then passed under the plate 18, and it is caused to enter the opening 28 in the plate 18 by way of the gap 29. The rope 30 then passes outwardly through the opening 28 in the plate 18, and down towards the lower end of the plate 18, passing out between it and the hinged plate 23. It will now be understood that the rope 30 passes between the two plates 18 and 23 from the point where it comes upwardly through the opening 28 in the plate 18 to the lower end of the plate 23. It will be noticed that the rope 30 is coiled around the steel loop 20 at the top of the rope-clamp, as at 32; one or more coils being used here to give friction to hold the rope-clamp against sliding down the rope. The fireman wearing the rope-clamp clasps the two plates 18 and 23 near their lower ends with one hand, and grips them together, and the rope 30 between them, to add still more friction on the rope

to prevent downward movement along it. It is necessary in such cases for the fireman to keep the two plates 18 and 23 firmly grasped in his hand; and upon his releasing these two plates he has only the friction of the coils 32 about the steel loop 20 to check downward movement. Manifestly, so long as the fireman has to grasp the two plates of the rope-clamp with his hands he cannot use his hands for any other purpose. To enable the fireman to free his hands for other duties I provide a locking device, which will hold the two plates 18 and 23 in position after they are clamped upon the rope 30. On the plate 18 I provide the lug 33 in which are cut a series of detents or teeth 34. On the plate 23 is adjustably fixed the locking slide 35. One end of this slide has a tongue 36 which enters and slides in the bracket 37, and it is held from displacement from the bracket by the head 38. The other end of the locking slide engages one of the detents or teeth 34 in the lug 33. On the face of the locking slide 35 is a thumb piece 40, of convenient form so that when the thumb is pressed against it the end 39 of the locking slide is withdrawn from the teeth 34 in the lug 33. When the locking slide is so operated by the thumb the head 38 presses against the coiled spring 41, which spring returns the locking slide into engagement with the teeth 34 of the lug 33, when the thumb piece 40 is released. Now when the fireman desires to seize the rope 30 by means of this rope-clamp, the rope 30 is set in position in the manner described above, and the fireman seizes the two plates 18, and 23 and presses them together so that they shall grip the rope 30, and at the same time the end 39 of the locking slide 35 will engage in the teeth 34 of the lug 33; the spring 41 keeping the locking slide in engagement with the said teeth. The plates 18 and 23 may now be released from the hand; as they are now securely clamped about the rope 30 by means of the locking slide 35. The fireman is then supported on the rope by means of the rope clamp; and both of his hands are free for other purposes. When the fireman decides to slide down the rope, with his hand he presses against the thumb piece 40 so as to withdraw the locking slide 35 from engagement with the teeth 34 in the lug 33 (see Figure III). Still retaining his grasp of the two plates 18 and 23, by varying the pressure of his hands on the two plates he can vary the friction of the said plates on the rope 30 and so allow himself to slide more or less swiftly down that rope to the next desired position. If he wishes to stop at any new point it is only necessary to release the thumb piece 40, and to again firmly press the plates 18 and 23 into engagement with the rope 30.

It will now be understood that in Figure I a fireman is shown wearing my improved safety belt on which is my improved rope-clamp by means of which he is safely clamped to the climbing rope 30. In Figure III the fireman is shown releasing the locking slide on my rope-clamp so that he may alter his position on the climbing rope. In Figure IV he is shown supported by my rope-clamp while he is removing a child from the window of a building. At the same time he has slung from his waist belt another victim; and he is prevented from swinging away from the window by means of the chain and hook.

I claim:—

1. A safety-belt rope-clamp consisting of a plate adapted to be attached to a belt, and having an opening through which a rope may be passed from the back to the front of the plate, and also having mounted at one edge of it a notched lug; a second plate hinged to the first plate above the opening in the latter and adapted to be clamped down upon the rope passed between the two plates, and having mounted upon it a sliding bar adapted to be slid into engagement with the notched lug on the first plate to hold the two plates in clamping position on the rope; and means for releasing the sliding bar from engagement with the notched lug to relieve the clamping pressure of the plates upon the rope.

2. A safety-belt rope-clamp consisting of a plate adapted to be attached to a belt, and having an opening through which a rope may be passed from the back to the front of the plate, and also having mounted at one edge of it a notched lug; a second plate hinged to the first plate above the opening in the latter and adapted to be clamped down upon the rope passed between the two plates, and having mounted upon it a spring actuated catch adapted to engage with the notched lug on the first plate when the second plate is closed down upon the rope to hold the two plates in clamping position on the rope; and means for releasing the catch from engagement with the notched lug to relieve the clamping pressure of the plates upon the rope.

In testimony whereof I hereunto affix my signature.

RALPH LE ROY COSBY.