(No Model.) 2 Sheets—Sheet 1.

J. S. GOLDSMITH.

LIFE PRESERVER FOR VEHICLES.

No. 347,269. Patented Aug. 10, 1886.

Fig. 1.

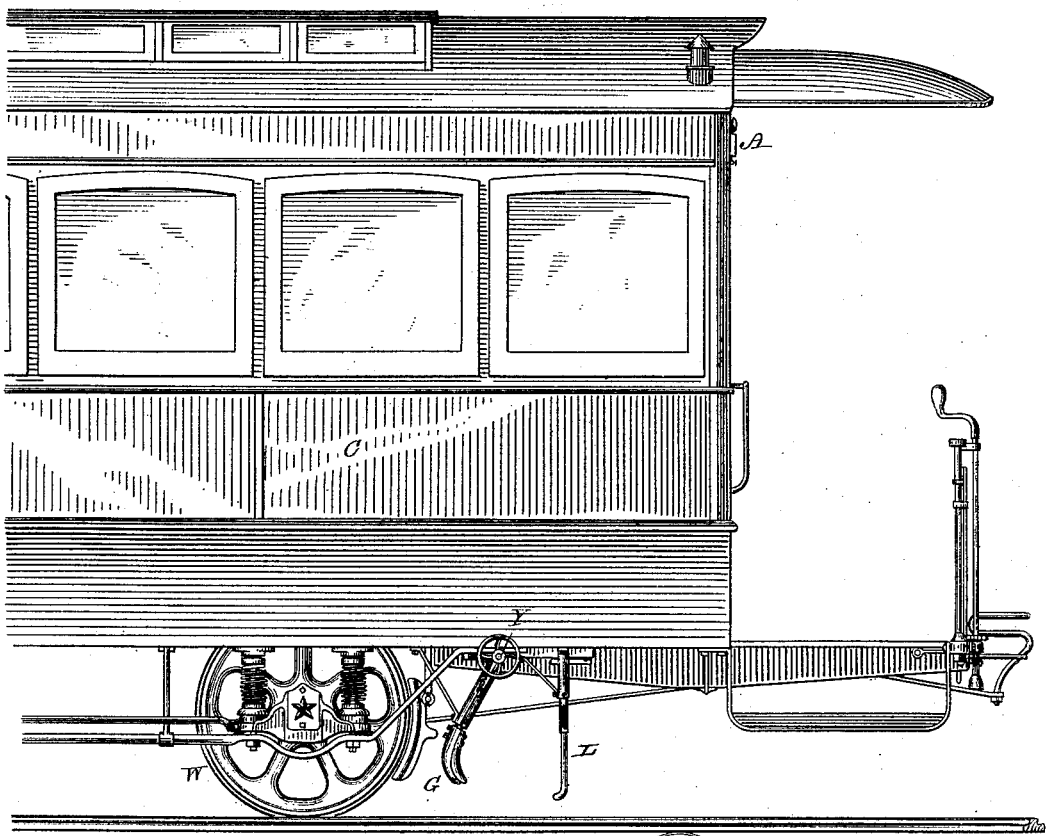
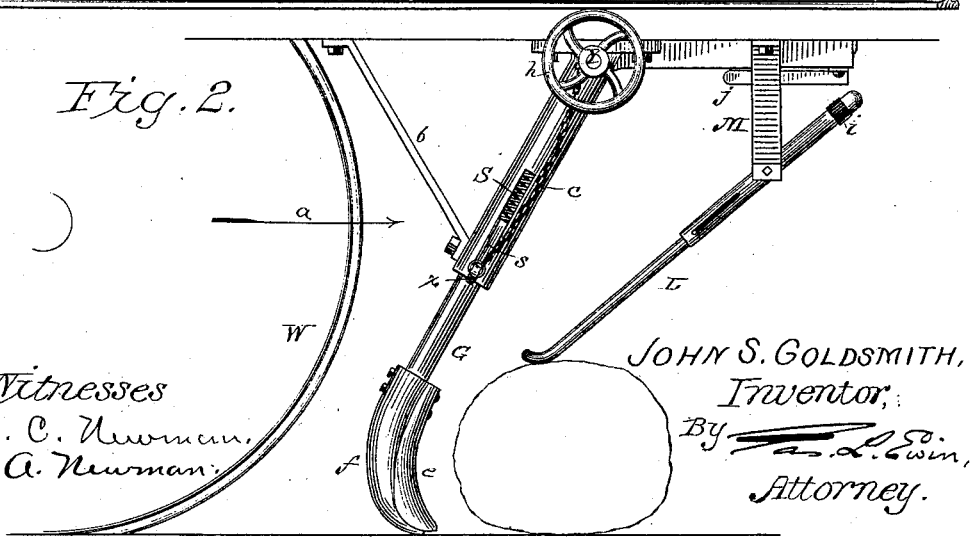


Fig. 2.



Witnesses
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(No Model.)

2 Sheets—Sheet 2.

J. S. GOLDSMITH.

LIFE PRESERVER FOR VEHICLES.

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Fig. 3.

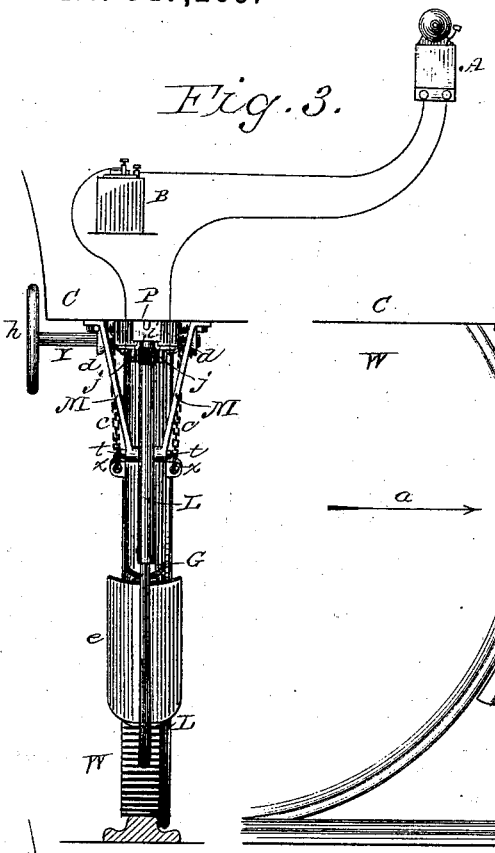

Fig. 8.

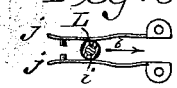

Fig. 9.

Fig. 4.

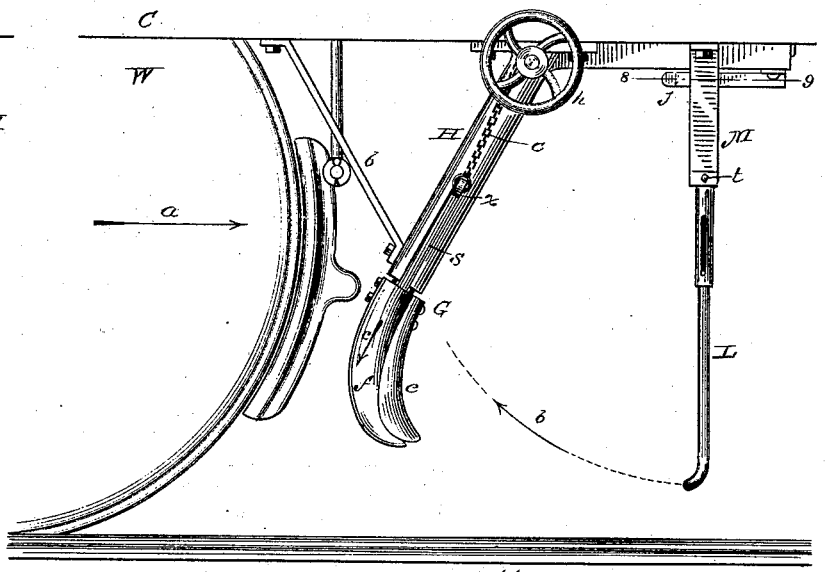

Fig. 6.

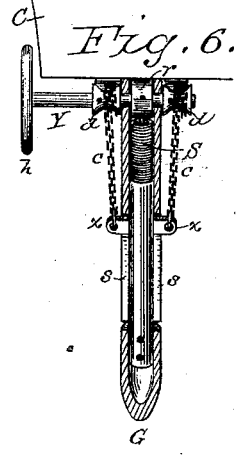

Fig. 5.

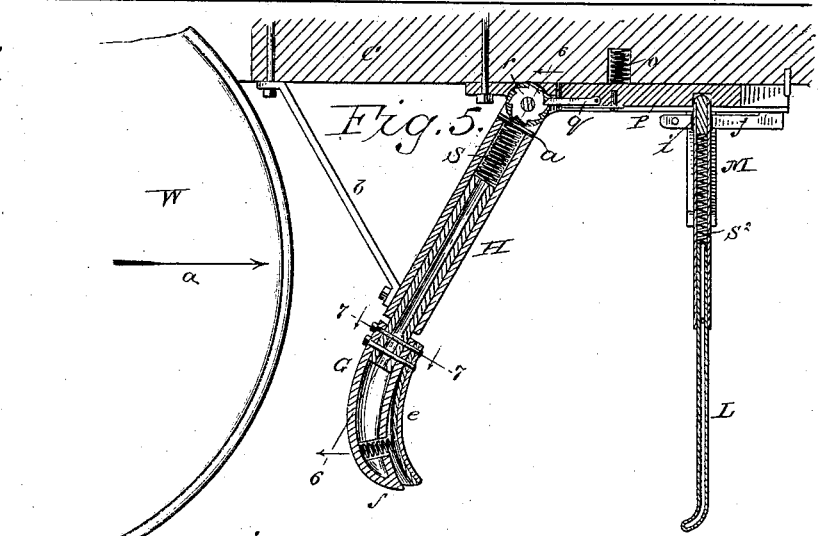

Fig. 7.

Witnesses
W. C. Newman.
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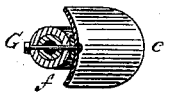

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UNITED STATES PATENT OFFICE.

JOHN S. GOLDSMITH, OF NEW YORK, N. Y.

LIFE-PRESERVER FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 347,269, dated August 10, 1886.

Application filed March 6, 1886. Serial No. 194,301. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. GOLDSMITH, a citizen of the United States, residing at New York, in the State of New York, have invented a new and useful Improvement in Life-Preservers for Vehicles, of which the following is a specification.

This invention relates to means for preventing loss of life and limb beneath the wheels of street-cars and other vehicles in cities.

The present invention, as hereinafter more particularly set forth and claimed, consists, first, in a spring-projected wheel-guard for each wheel which may need it, in combination with a hoisting device for putting the spring in tension, a detent device coacting with said hoisting device, for retaining the guard ordinarily in elevated position, and a liberating device for retracting said detent device, to permit the wheel-guard to descend instantaneously into contact, or substantially into contact, with the track or road-bed when its use is imminent; secondly, in a peculiar combination of parts for elevating said wheel guard and retaining it in elevated position until it is required; thirdly, in a peculiar combination of parts for locating a lowering-spring within it; fourthly, in a peculiar construction thereof with reference to preventing injuries of body and limb by contact therewith; fifthly, in an easily-moving "liberator" adapted to be actuated by contact with bodies or limbs on the track, and peculiarly constructed with reference to accommodating it to the rise and fall of car-bodies; sixthly, in a peculiar construction thereof with reference to preventing injuries of body or limb by contact therewith; seventhly, in a novel combination of parts for sounding an alarm, so that the driver may at once apply the brakes when said liberator comes in contact with a body or limb.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings is a half side view of a street-car provided with "life-preservers" according to this invention. Fig. 2 is a side view of one of the life-preservers on a larger scale, showing the parts in operation. Figs. 3 and 4 are front and side views thereof on the same scale as Fig. 2, showing the parts at rest in normal position, as in Fig. 1. Fig. 5 represents a vertical section in a plane parallel to that of Figs. 1, 2, and 4. Fig. 6 represents a section on the line 6 6, Fig. 5. Fig. 7 represents a cross-section of the wheel-guard on the line 7 7, Fig. 5; and Figs. 8 and 9 represent fragmentary plans in the plane indicated by the line 8 9, Fig. 5.

Like letters of reference indicate the same parts in all the figures.

The single life-preserver which appears in the drawings will be understood as representing one applied at each point where it may be needed, as aforesaid. On a double-ended street-car, for example, there would be a pair of them at each end of the car; on a single car and most other vehicles but one pair in front of the fore wheels. All on each vehicle would be alike or substantially alike.

For clearness the following description will be confined to one life-preserver on the front end of a street-car in the best and most complete form now known to me, as shown in the drawings. Immediately in front of the wheel W a wheel-guard, G, depends from the sills of the car-body C. In front of said wheel-guard a liberator, L, depends from said sills, and above the driver's platform an electric bell or "alarm," A, Fig. 3, is attached to the end of the car, its battery B being located beneath one of the seats inside, or in other convenient position. Said wheel-guard G is supported by a hanger-bracket, H, strongly bolted to the car-sills or a supplemental timber, and preferably connected therewith by one or more braces, *b*, to stay its lower end. The body of this bracket is tubular, and the stem of the guard G slides therein, being itself constructed, together with its foot *f*, of gas-pipe, for combined lightness and strength. A cross-bar, *x*, with which said stem of the guard is provided, works in longitudinal slots *s* in said tubular body of the hanger-bracket, and the ends of the cross-bar are connected by chains *c* with drum-pulleys *d* on a winding-shaft, Y, which is furthermore provided with a hand-wheel, *h;* or it may be simply a square to receive the brake-crank on its outer end and a ratchet-wheel, *r*, at mid-length. A detent-pawl, *q*, engages with the latter, and is carried by a slide, P, by which to retract it to liberate the wheel-guard. Said slide is guided by an extension of the upper end of the hanger-bracket H, and is acted on by a friction-spring, *o*, Fig. 5, which

supplements the inertia of the parts for preventing the retraction of the slide by jolting. A spiral spring, S, to insure the instantaneous descent of the liberated guard is confined within said tubular body of the hanger-bracket H, and is compressed and reacts between the upper end, *z*, of said stem of the guard and an abutment, *a*, formed in the example by a cross-pin in the upper part of the hanger-bracket. The foot *f* is so shaped as to tend in its lowered position, Fig. 2, to lift a body in contact therewith while the car runs ahead, and so as to be free from sharp edges, and is furthermore provided on its front with a cushioning or easing shield, *e*, constructed of felt or leather, backed by suitable springs, as shown, for example, in Figs. 5 and 7. Said liberator L is connected with the car-body by a hanger-bracket, M, bolted directly to the sills or to a supplemental timber. The liberator proper is pivoted at the lower end of the bracket by horizontal trunnions *t*, transverse with reference to the car, so that the lower end of the liberator swings freely in the direction of the rail over which it hangs. The liberator is telescopic, and provided internally with a light spiral spring, S^2, as seen in Fig. 5. The latter reacts between the upper end of the lower section of the liberator and a plug, *p*, which closes the upper end of the upper section and tends to keep said lower section projected, as shown. Said lower section of the liberator is made light, as indicated in Fig. 5, and its lower extremity is bent rearward, as seen in this and other figures, so as to aid in preventing any hurt to body or limb by its contact therewith. The plugged upper end of the liberator coacts with a socket or notch, *n*, in said slide P, and thus serves to actuate the latter. It is also provided with an insulator-collar, *i*, near its upper end, which in its normal position is interposed between two contact-figures, *j j*, which form part of the electric circuit of said alarm A, and are insulated from each other, and keeps apart their contact-points, as seen in Fig. 8, until said liberator is swung from said normal position, as shown, for example, in Fig. 2, when the released fingers *j j* bring their contact-points together, as shown in Fig. 9, and the alarm-circuit is completed and an alarm is sounded.

The alarm device A and its battery B may be of any approved make, and connected with each other and with said contact-fingers *j j* by insulated wires, as indicated in Fig. 3, in any approved manner. The electric circuit may also be a closed circuit, if preferred, instead of an open circuit, as shown, which would dispense with the insulator-collar *i*.

In operation, the wheel-guard G is kept wound up, as represented in Figs. 1, 3, 4, 5, and 6, the battery B charged, and all the working parts of the life-preserver in proper working condition. To this end it should be tested periodically—say each morning. The car being in motion, as represented by arrows *a* in Figs. 1, 2, 4, and 5, should a person fall with body, head, or limb in the path of the wheels, the liberator L will first come in contact therewith, and swinging freely on its trunnions *t*, as indicated by arrows *b*, Fig. 4, will retract the slide P, and thereby the detent-pawl *q*, from mesh with the ratchet-wheel *r*, thus liberating the wheel-guard G, which instantaneously descends in front of the wheel W, as indicated by arrows *c*, Fig. 4, and, unless the car is sooner stopped, catches the body, head, or limb upon the cushion *e* of its foot *f* and carries the same upon the latter until it escapes or the car stops. An automatic brake may be liberated in like manner. Simultaneously with the release of the wheel-guard the circuit of the electric alarm A is completed or broken, as the case may be, by the coaction of the liberator L with said fingers *j j*, and the distinctive alarm informs the driver of the accident, so that he may at once apply the brakes, and thus avoid dragging the body beneath the car. At other times the wheel-guard G occupies the elevated position in which it is shown in Figs. 1, 3, 4, 5, and 6, as aforesaid, so as to be wholly out of the way, and the liberator L hangs perpendicularly, as shown in these figures, with its lower end close above the rail, its telescopic form and inclosed spring providing for its contraction without strain and its subsequent restoration should the car-body sway so as to bring it into contact with the rail.

It will be apparent that the liberator and wheel-guard, or the liberator and alarm, or the liberator and a different alarm or automatic brake, may be used without the remainder of my life-preserver; and the respective parts of the apparatus may be modified as to details of mechanical construction, as those skilled in the art will understand. I do not therefore limit my several claims, hereinafter stated, to the use of the respective parts in the general combination hereinbefore set forth, nor to details of construction, except as therein respectively provided; but said general combination is preferred, especially for street-cars, and will, it is believed, afford the best results in practice. The same may also be applied to locomotives for service when running in cities at the low rates of speed prescribed for the running of trains through and across streets and avenues.

Having thus described my said improvement in life-preservers for vehicles, I claim as my invention, and desire to patent under this specification—

1. A wheel-guard supported by a hanger-bracket in front of a vehicle-wheel, in combination with a hoisting device, a lowering-spring put in tension by said hoisting device, a detent device coacting with said hoisting device for retaining the guard ordinarily in elevated position, and a liberating device for retracting said detent device to permit the guard to descend when its use is imminent, substantially as herein specified.

2. In combination with a wheel-guard having a stem provided with a cross-bar, and a

hanger-bracket having a slotted tubular body to receive and guide said stem and cross-bar, a horizontal shaft provided with hand-wheel, drum-pulleys, and ratchet-wheel, a pair of chains connecting the respective ends of said cross-bar with said drum-pulleys, and a detent-pawl engaging with said ratchet-wheel, substantially as herein specified.

3. In combination with a wheel-guard having a stem, and a hanger-bracket having a tubular body to receive and guide said stem, a spiral spring inclosed within said body between the upper end of said stem and an abutment, substantially as herein specified.

4. The within-described wheel-guard having a stem and rigid foot of gas-pipe, provided in front with a cushioning or easing shield of soft material, which is conformed to said foot, attached at its upper end to said stem, and backed by springs, substantially as herein specified.

5. In a life-preserver for vehicles, a swinging telescopic liberator which normally depends perpendicularly in front of a fore wheel with its lower end close above the rail or roadbed, and is provided within its upper section with a spiral spring, tending to keep its lower section projected at full length, substantially as herein specified.

6. In a life-preserver for vehicles, a liberator depending in front of a fore wheel and swinging freely in the direction of travel, the lower section of the liberator being lightened and rearwardly curved to prevent injury to body or limb in contact therewith, substantially as herein specified.

7. The combination, in a life-preserver for vehicles, of an electric alarm, a pair of contact-fingers in the circuit of said alarm, and a liberator depending beneath the body of the vehicle swinging freely in the direction of travel, and coacting with said fingers to start the alarm when said liberator comes in contact with an object, substantially as herein specified.

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J. I. CONKLIN, Jr.