

(No Model.)

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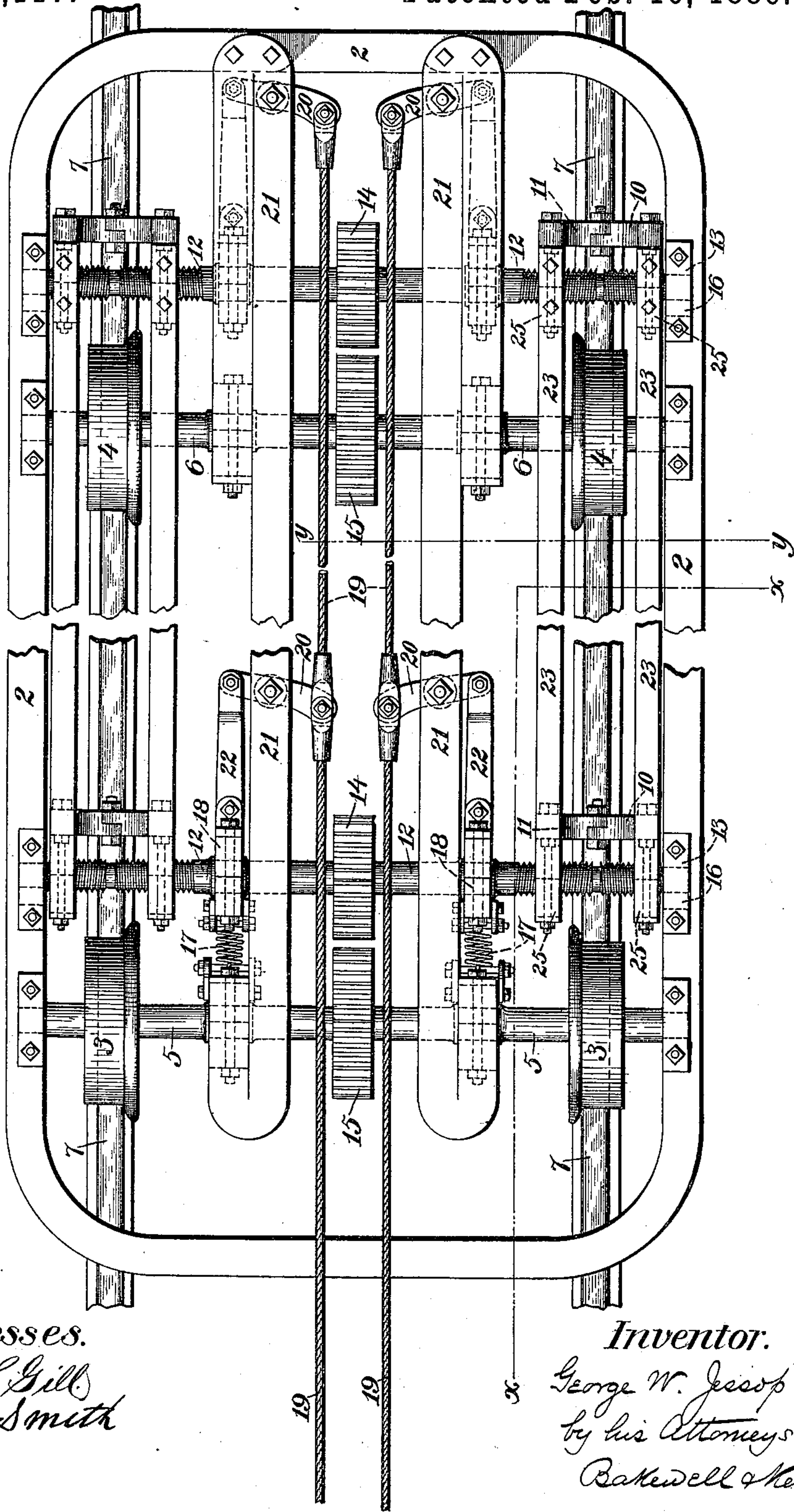
G. W. JESSOP.

SAFETY DEVICE FOR INCLINED RAILWAYS.

No. 336,117.

Patented Feb. 16, 1886.

Fig. 1.



Witnesses.  
Harry L. Gill  
Jno. K. Smith

Inventor.  
George W. Jessop  
by his Attorneys  
Bakerdell & Kerr

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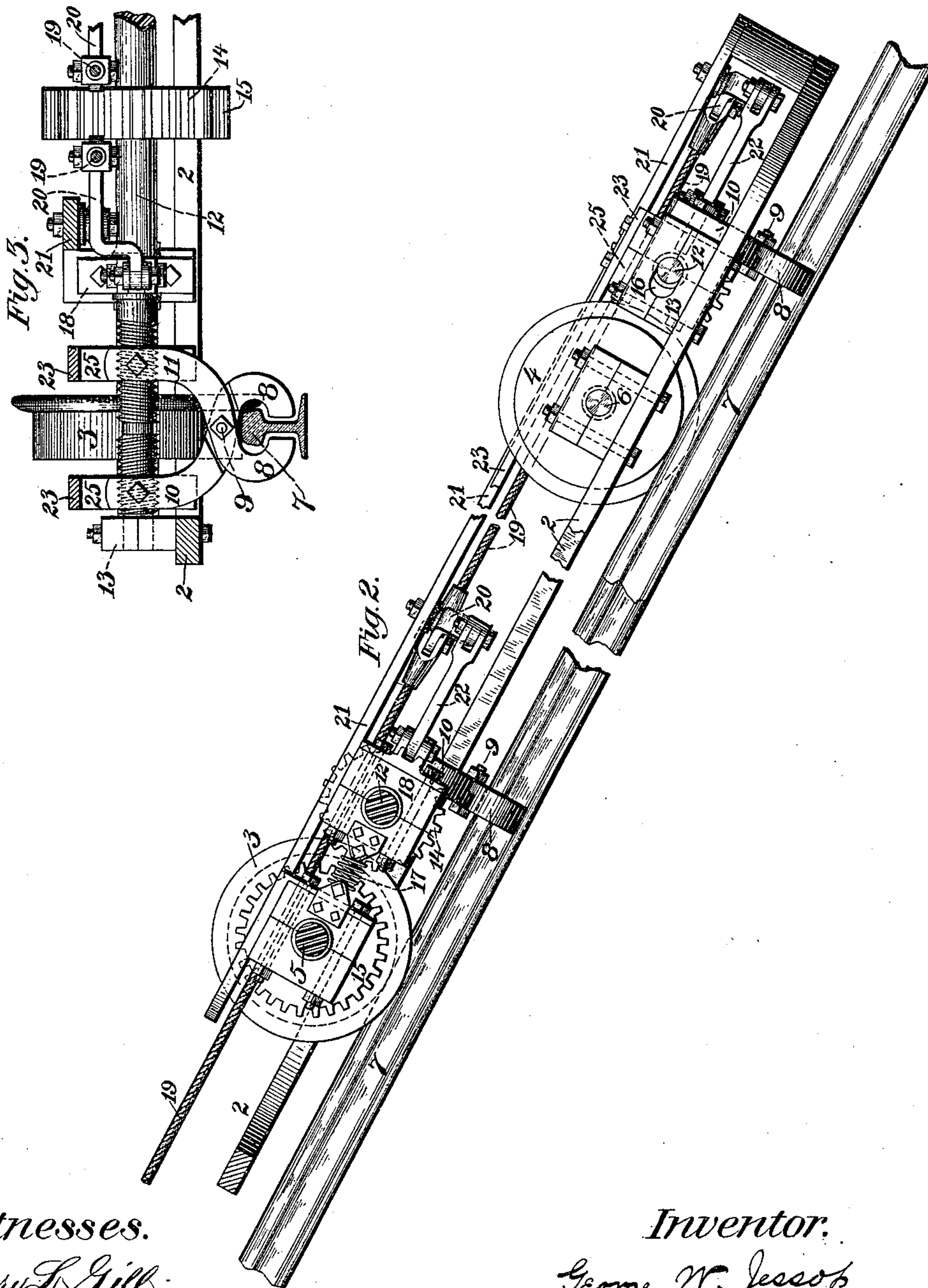
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# UNITED STATES PATENT OFFICE.

GEORGE W. JESSOP, OF PITTSBURG, PENNSYLVANIA.

## SAFETY DEVICE FOR INCLINED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 336,117, dated February 16, 1886.

Application filed June 22, 1885. Serial No. 169,365. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. JESSOP, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Safety Devices for Inclined Railways; and I do hereby declare the following to be a full, clear, and exact description thereof.

The object of my invention is to provide means for preventing those accidents on inclined railways which result from the breaking of the traction-cables.

It consists in the automatic device for checking the car immediately upon its breaking loose, hereinafter set forth and claimed.

I will describe my improvement with reference to the accompanying drawings, in which Figure 1 is a plan view of the device applied to a car-truck. Fig. 2 is a side view of the same. Fig. 3 is a transverse section on the line *y y* of Fig. 1, Fig. 2 being shown partly in section on the line *x x* of Fig. 1.

Like letters of reference indicate like parts wherever they occur.

In the drawings, 2 represents the outer frame of a railway-car truck for use on inclined planes, and 3 and 4 the wheels, which are fixed on each side of the car to rotary axles 5 and 6; and 7 are the rails upon which the car travels. The safety clamps or brakes used in checking the car upon the occurrence of an accident consist of gripping-jaws 8, pivoted together at 9, and provided with upwardly-extending arms or levers 10 and 11. (See Fig. 3.) The jaws 8 are situate so as to inclose the rail, leaving a sufficient space between the jaws and the web, that the car may move freely on the track without interfering with it. A transverse rotatory shaft, 12, is journaled parallel with and just back of one of the axles, 5, and passes through the jaw-levers, or through boxes 25, affixed thereto, the part which traverses one of the arms, 11, or its box being provided with a left-hand thread, and the part which traverses the other arm, 10, or its box being screw-threaded in the opposite direction, the holes in the arms themselves or in their boxes 25 being correspondingly threaded, so that as the shaft is turned in one direction it may bring the gripping-jaws 8 together to clamp the inclosed rail, and if it be reversed the jaws may be spread apart again.

The shaft 12 is journaled in housings 13 on the sides of the truck-frame, and is provided with a spur-wheel, 14, whose periphery is situate opposite to the periphery of a similar spur-wheel, 15, affixed to the axle 5. Normally, these spur-wheels are kept separate and out of gear, so that while 15 rotates continuously with the axle, as the car moves on its track, the spur-wheel 14 and the shaft 12 are ordinarily at rest. If, however, they be set in motion by engagement of the rotating spur-wheel 15 with its companion wheel 14, the revolution of the shaft will act upon the threaded lever-arms, and if the car be moving down the plane will bring the ends of the gripping-jaws together to clamp the web of the rail very firmly. The friction thus caused will stop the car almost immediately. This operation is performed automatically by the following arrangement of mechanism: The housings of the transverse shaft 12 are slotted lengthwise of the car, as shown at 16 in Fig. 2, so that the shaft may be movable throughout the length of the slots, toward or away from the axle 5. A spring, 17, is affixed at one end to a block or box, 18, on the shaft 12, and at the other end to a similar box on the axle 5, or to another convenient point of attachment, the tensile strain of the spring being such as to tend to draw the shaft 12 in its slotted bearings toward the axle and to bring the spur-wheels 14 and 15 into gear. They are, however, kept out of gear by the traction-cable 19, which is secured to one end of a lever, 20, pivoted to a beam or brace, 21, of the truck-frame. The other end of the lever 20 is attached to the shaft 12 by a connecting-bar, 22, the parts being relatively so arranged that the strain of traction upon the lever 20 may act upon the shaft 12 to overcome the power of the spring 17, and to pull the shaft away from the axle, thereby disengaging the spur-wheels 14 and 15. The weight of the car, relatively to the tension of the spring should be sufficient to overcome the latter, and when the car is dependent upon the cable, to keep the shaft 12 far enough from the axle to prevent meshing of their spur-wheels.

I have described only one clamp or brake and one set of gear-wheels for operating them. In practice I prefer, however, to have at least



four of these brakes and two of the shafts 12, one of the latter placed adjacent to each car-axle, and a clamp arranged on the ends of each shaft, there being thus two for each rail of the track. The corresponding lever-arms of the gripping-levers on each side of the car are preferably connected by braces 23, which serve to hold them steadily in place. Each of the shafts 12 is journaled in elongated bearings, as before described, and is provided with one or more retracting-levers, 20, to keep the spur-wheels 14 out of gear with their pinions 15. I have shown four of these levers—two for each axle—the levers on each side of the car being attached to a separate traction-cable.

Thus constructed, the operation of my improved device is as follows: So long as the cables remain intact, and the weight of the car is upon them, the shaft 12 will be out of gear and the clamping or braking jaws unaffected. If, however, the cables should break, the weight of the car being immediately released from the levers 20, the springs 17 will draw the shafts 12 toward the rear and front axles, respectively, thereby bringing the several sets of spur-wheels 14 and 15 into gear. The motion of the car as it descends the inclined plane will turn the axles 5 and 6, and, acting on the screw-threaded shafts 12, will bring the jaws of the clamps together upon the rails, and will stop the car in a short time. It is of course desirable that the rails should be very firmly secured to their bed, so that the sudden stopping of the car may not tear them up. For this purpose I prefer to bolt the rails to their ties rather than to spike them, as now usually done. The rails may also be arranged without fish-plates or splice-bars, which might catch upon the jaws of the gripping-levers, and thereby stop the car too suddenly for safety.

If desired, the gripping-brakes may be varied from the construction shown. For example, the gripping-jaws on each side of the car may be connected by a bar or plate whose whole surface will bear upon the web of the rail when

the several jaws are clamped, thus adding to the strength and speed of action of the device. The gripping-jaws need not act upon the rails of the car-track, but may be arranged to inclose a separate rail or rails bolted to the ties between or outside of the track-rails, or they may act upon a rod or cable unbolted to the ties, but coextensive with the track, and secured at the upper terminus thereof. I do not, therefore, desire to limit myself to the precise arrangement of mechanism herein shown and described, nor do I desire to limit its use to inclined planes, since it may be applied to elevators or other lifting devices; but

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

1. The combination, in a lift-car, of a rod extending longitudinally with the car-track, a clamp for engaging the rod, a rotatory shaft connected with the clamp and threaded so as to cause the same to be clamped by rotation of the shaft, gearing for connecting the car-axle with said shaft, the latter being connected with the traction-cable and capable of being held out of gear with the axle by tension of the cable, and mechanism for moving the same into gear when the tension of the cable ceases, substantially as described.

2. The combination of the gripping-levers 8, having arms 10 and 11, a rotatory shaft traversing these arms and having right and left screw-threads, a gear-wheel on the shaft, a gear-wheel on the car-axle, said gear-wheels being movable toward each other, a spring for so moving the same, and a traction-cable connected with the shaft and capable of keeping the same out of gear from the axle by its tension, substantially as described.

In testimony whereof I have hereunto set my hand this 16th day of June, A. D. 1885.

GEORGE W. JESSOP.

Witnesses:

W. B. CORWIN,  
T. W. BAKEWELL.