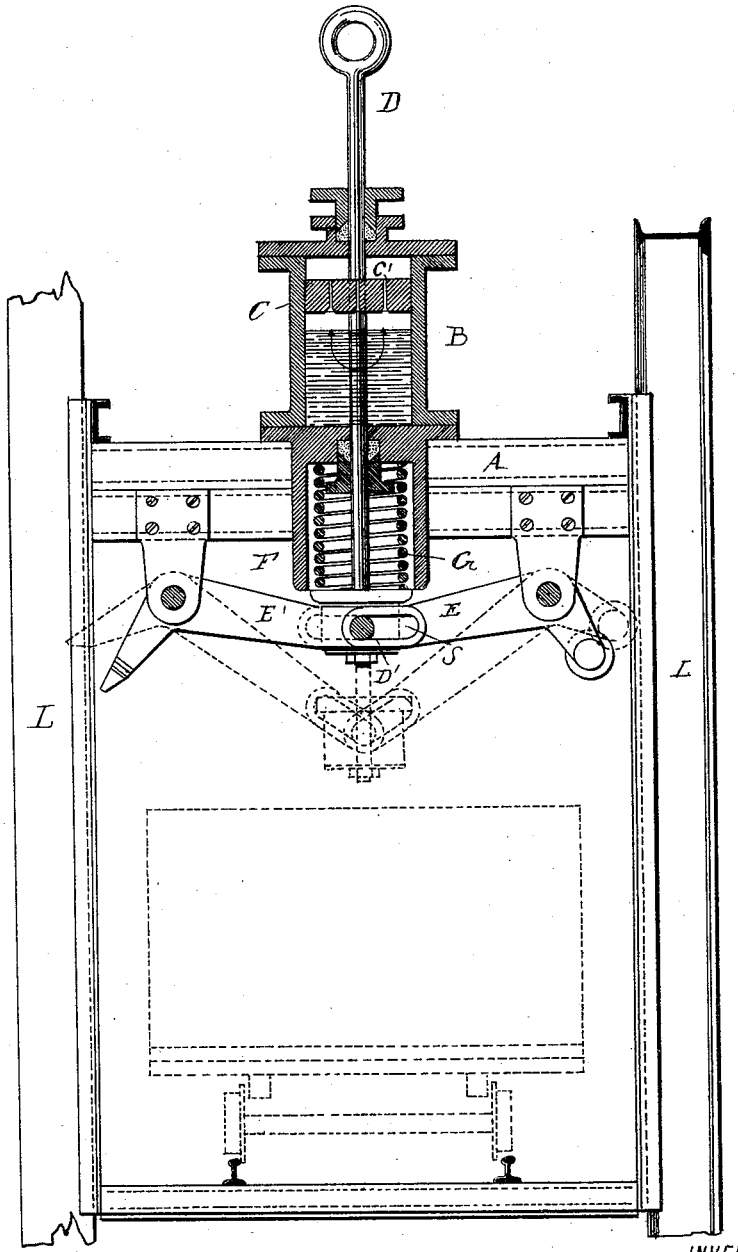
(No Model.)

A. EICHERT.

SAFETY DEVICE FOR ELEVATORS.

No. 454,263. Patented June 16, 1891.



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SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 454,263, dated June 16, 1891.

Application filed December 9, 1890. Serial No. 374,122. (No model.)

To all whom it may concern:

Be it known that I, AUGUST EICHERT, a subject of the Emperor of Germany, and a resident of Hohenzollern Grube, near Benthen, Germany, have invented a new and useful Improvement in Safety Devices for Elevator-Cars, of which the following is a specification.

This invention relates to improvements in safety devices for elevator-cars; and the object of my invention is to provide a safety device which is so constructed that when the car is suddenly stopped, in case the rope breaks, the goods or persons in the car are not thrown out by a sudden concussion or jolt.

In the accompanying drawing an elevation of an elevator-car provided with my improved safety device, parts in section, is shown.

On the top of the car A a cylinder B is fixed, in which a piston C is mounted to move up and down. The piston-rod D is secured to said piston and projects from the top and bottom of the cylinder and through suitable stuffing-boxes in the top and bottom of said cylinder, the hoisting cable or chain being attached to the upper end of said piston-rod. To the lower end of said piston-rod D a pin D′ is fastened, which passes through slots S in the adjacent ends of two locking-levers E E′, suitably pivoted on the car. The piston C is provided with several apertures C′, and the lower part of the cylinder B contains a quantity of glycerine or other non-freezing fluid. To the bottom of the cylinder B a cylindrical casing F is secured containing a powerful spiral spring G.

The operation is as follows: In case the hoisting chain or rope breaks the spring G, which is ordinarily compressed, expands and, acting on the head G′ on the lower end of the piston-rod D, forces said piston-rod downward, whereby the ends of the locking-levers E E′ are pressed against the guide posts or beams L L′. The air between the bottom of the piston and the top of the glycerine acts as a cushion and prevents the piston from descending too rapidly. As the piston is pressed against the glycerine or other liquid in the lower part of the cylinder B, its downward movement is arrested or checked for the time being, and this prevents the sudden engagement of the locking-levers with the guide-posts. The car, instead of being stopped suddenly, slides gently down along the guide-posts, and during the said downward movement the spring G continues to press the inner ends of the levers E E′ downward still more, the piston C being forced downward in the glycerine as rapidly as the glycerine can pass through the apertures C′. As the glycerine or other liquid must pass through the apertures C′, which are comparatively small, the said downward movement of the piston C can only take place gradually, and thus there is never any danger of the car being stopped so suddenly as to break any parts or to endanger the lives of the occupants of the same. By the time that the spring G has forced the locking-levers down as far as shown in dotted lines the car will be at an entire standstill.

If the locking-levers are shaped as shown in left-hand side of the drawing and the cable breaks, they are engaged with the side beams and brought in position, as shown in dotted lines. Although the car would stop rather suddenly, the jar and impact would be broken by the cushions of the liquid in the cylinder.

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

1. In a safety device for elevator-cars, the combination, with locking-levers, of a rod connected therewith, a piston on said rod, a cylinder in which the piston moves, a spring acting on said rod to press the same downward and to operate the locking-levers, and means on said rod for connecting it with the hoisting-cable, substantially as set forth.

2. In a safety attachment for elevator-cars, the combination, with a car, of locking-levers, a rod with which said locking-levers are connected, an apertured piston on said rod, a cylinder in which the piston can work up and down, a liquid in said piston, a spring acting on said rod to force it downward and spread the locking-levers, and means for connecting the hoisting rope or chain with the upper end of said rod, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

AUGUST EICHERT.

Witnesses:
OSCAR DU BOIS,
CARL SPIELER.