(No Model.)

# P. C. ZIMMERMAN.

## SAFETY DEVICE FOR ELEVATORS.

No. 496,179. Patented Apr. 25, 1893.

Fig. 1.

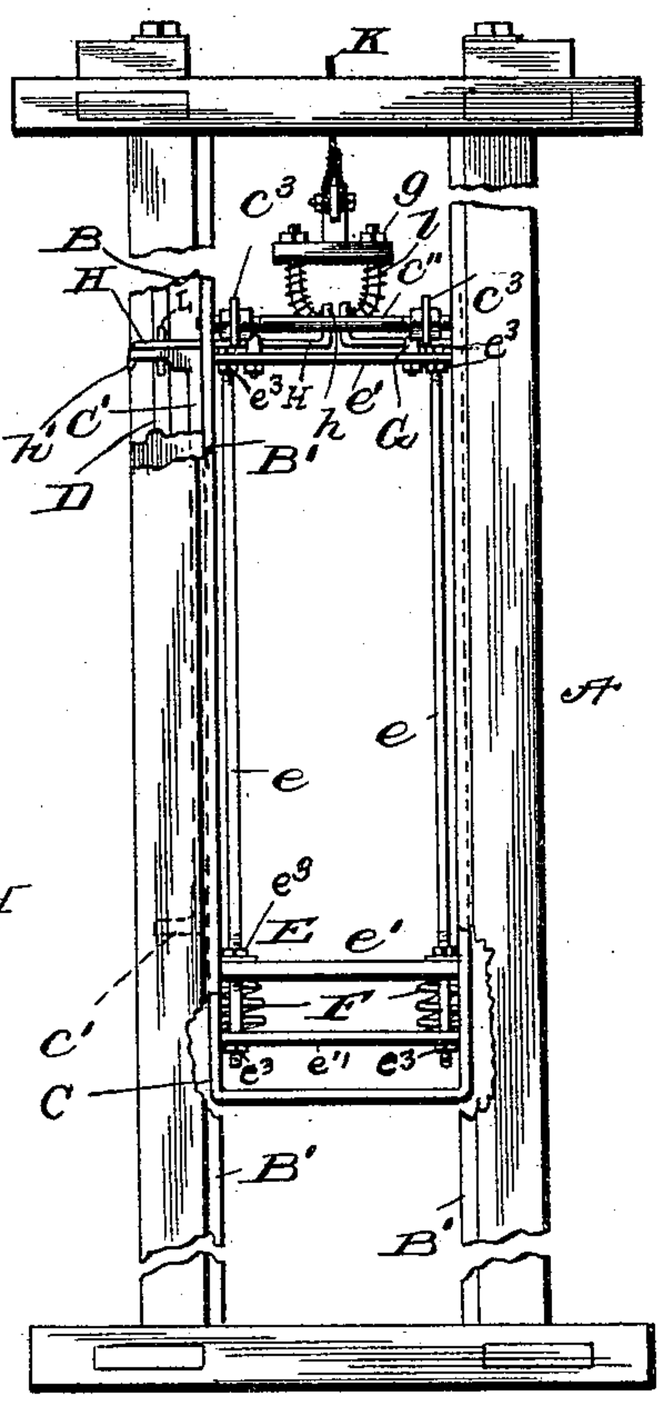


Fig. 8.

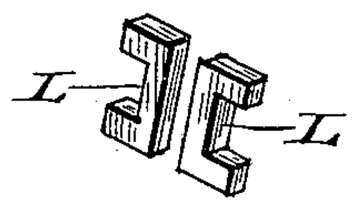


Fig. 7.

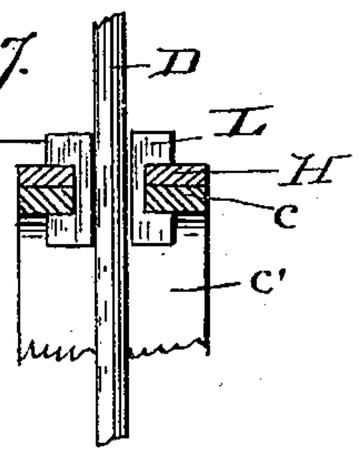


Fig. 4.

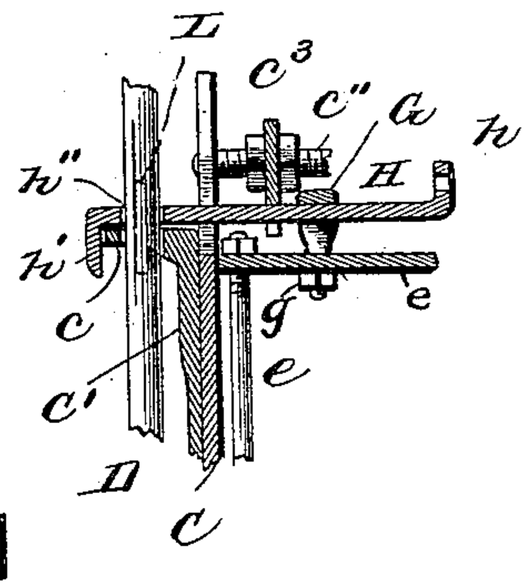


Fig. 2

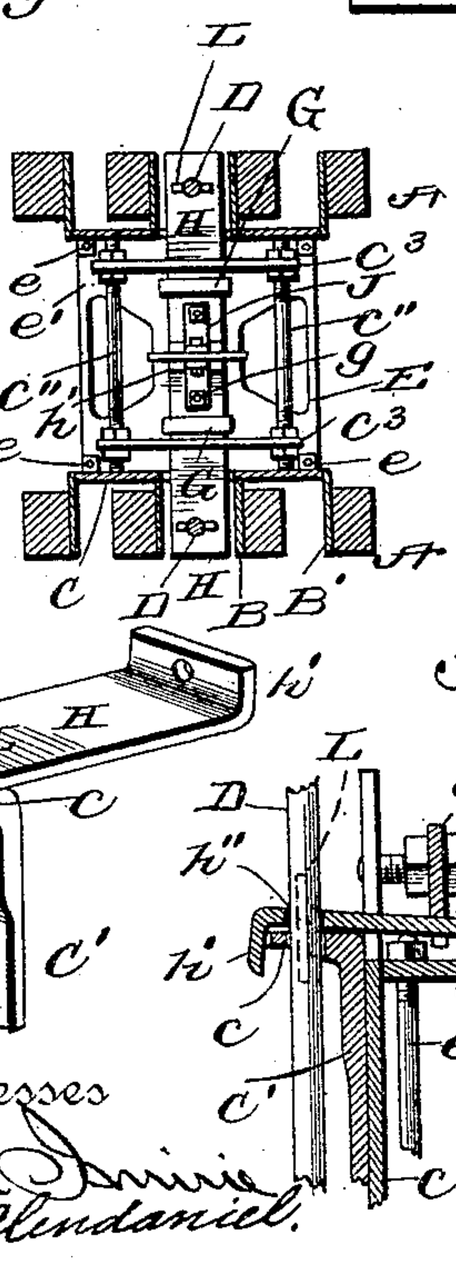


Fig. 3

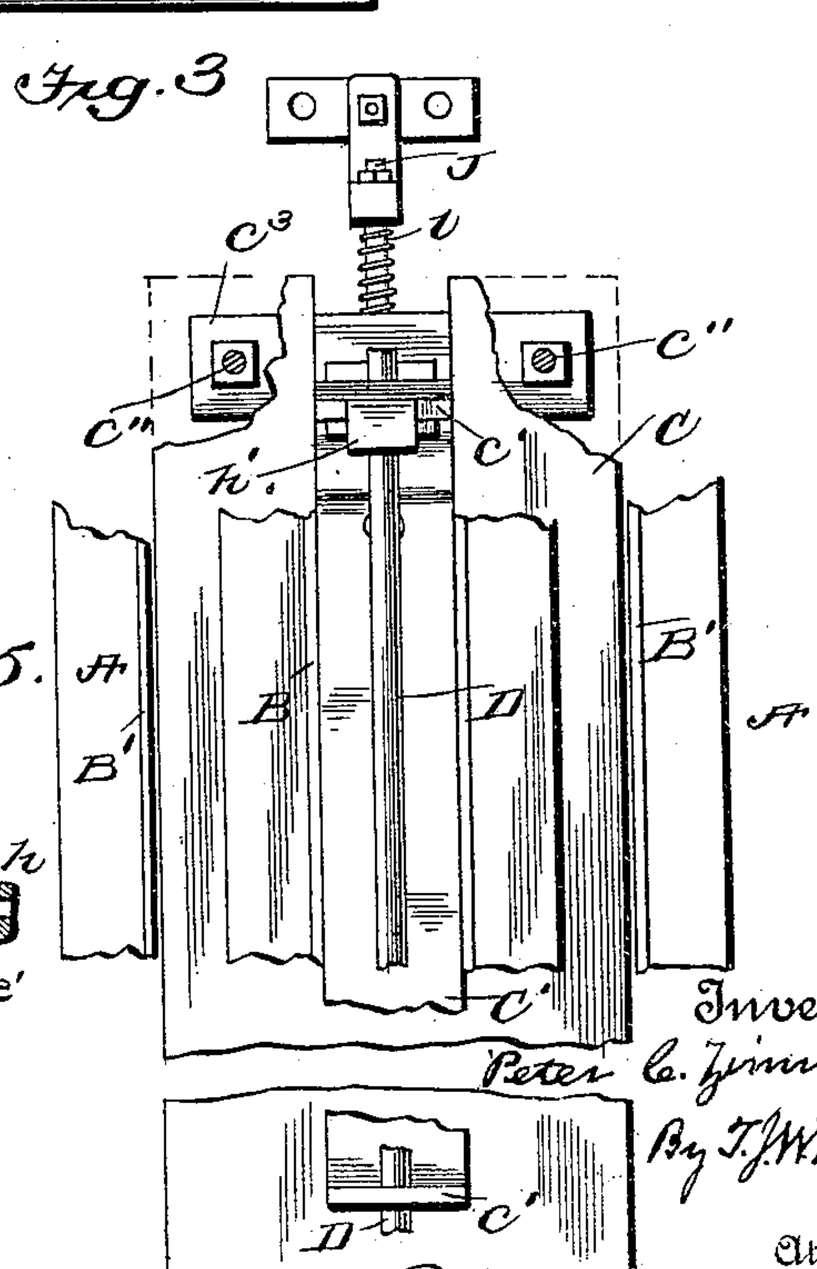


Fig. 6.




Fig. 5.




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# UNITED STATES PATENT OFFICE.

PETER C. ZIMMERMAN, OF SHIREMANSTOWN, PENNSYLVANIA.

## SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 496,179, dated April 25, 1893.

Application filed November 9, 1892. Serial No. 451,448. (No model.)

*To all whom it may concern:*

Be it known that I, PETER C. ZIMMERMAN, a citizen of the United States of America, residing at Shiremanstown, Cumberland county, Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates to that class of safety devices in which levers are so arranged as to slide easily over fixed rods when the parts are in their normal positions, but to firmly grip said rods should the hoisting rope break; and the invention consists in the peculiar construction, arrangement and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings: Figure 1 is a front elevation of an elevator constructed according to my improvement with parts represented as broken away. Fig. 2 is a section through the line $x\,x$ in Fig. 1. Fig. 3 is a side view of the upper part of the car. Figs. 4, 5, 6, 7 and 8 are details on a larger scale which will be more fully referred to hereinafter.

Referring now to the details of the drawings by letter—A represents the guide timbers sheathed with bars B B′ of suitable thickness, all preferably projecting slightly into the well, and the latter projecting the most, as clearly shown in Fig. 2. These bars form guides, between which the outer frame C of the car travels—the bars B forming the side guides while the bars B′ form front and rear guides, they projecting farther into the well for that purpose. The bars B also serve as back and front guides, as the frame C has firmly secured to it side pieces C′ which loosely fit between the bars B, and thus the latter serve as back and front guides also. The side pieces C′ are bent outward at the top and bottom forming arms $c\,c'$ as shown in Fig. 1, which have holes through them to receive the rods D which run from the top to the bottom of the elevator. The frame C is preferably formed of thick sheet metal or thin boiler iron, (although I do not limit myself to this material) which is bent into shape to form the bottom and two sides of the frame, and is connected at the top by rods $c''$ which support bars $c^3$ running from front to rear for a purpose hereinafter explained. Suspended in this frame C is a cage E consisting preferably of four vertical rods $e$, arranged at the four corners thereof, top and bottom pieces $e'$ and false bottom piece $e''$. The rods $e$ pass through all three of these pieces and the latter are held in their proper places by nuts $e^3$ as shown in Fig. 1, the rods being suitably threaded for that purpose.

Between the bottom and false bottom pieces $e'$ and $e''$ are shown spiral springs F which would serve to relieve the shock should a fall occur.

The top piece of the cage carries two yokes G secured by nuts $g$, between which yokes and the said top piece are two brake levers H, having their inner ends $h$ turned up to receive a clevis $l$ and their outer chords $h'$ turned down to pass into notches in the ends of the arms $c$. The clevis $l$ carries a pivoted cross bar J to the opposite ends of which are connected the hoisting ropes K. Around the clevis, below the cross bar, are shown two spiral springs which serve to keep the clevis in a central position. The levers H have holes $h''$ formed in them of such a shape that when the rope is pulling on the clevis they will slip easily over the rods D as shown in Fig. 4, but when there is no strain on the clevis, as would be the case should the rope break, then the levers assume the position shown in Fig. 5 and firmly clutch the rods D and thus the car is prevented from falling.

Any suitable means may be used for holding the levers to the arms $c$, but I prefer the double headed keys L which are set in notches in the arms and levers as shown. These keys are clearly shown in Fig. 7 in position and also detached in Fig. 8, from which their shape will be clearly seen. They are set in position before the rods are inserted and will always keep their place although loosely fitted therein. The levers pass under the bars $c^3$ and thus support the outer frame of the car C when the parts are in their normal positions.

From the above description it will be seen that as long as the rope and the connections between the car and the hoisting engine are complete the levers H will slide easily over the rods D, but should the rope or any connection between the engine and car break,

the weight of the cage and its contents being much greater than that of the frame C will make the cage travel faster than the frame, and thus make the yokes G press on and depress the brake levers H, causing them to rock on the inner corners of the side pieces C′ as on fulcrums and assume the position shown in Fig. 5 so as to make them firmly clutch the rods D and thus stop the car from falling. The false bottom being set on springs will prevent any damage or danger from the sudden stopping of the car, which might otherwise occur should the car be traveling fast before the stoppage.

What I claim as new is—

1. The combination in an elevator and with the hoisting rope thereof, of a car frame, a cage hung therein, fixed rods at the sides of the frame, and gripping levers having holes through which said rods pass and sliding on the same and connected with the hoisting rope, substantially as described.

2. The combination in an elevator and with the hoisting rope thereof, of a car frame, a cage hung therein, fixed rods at the sides of the frame, gripping levers sliding on said rods, a clevis connected to said levers and to the hoisting rope, substantially as described.

3. The combination in an elevator of a car frame having arms extending therefrom at each side, rods on which said arms run, gripping levers attached to said arms and running on said rods, a cage hung on said levers, and a hoisting rope connected to the ends of the levers, substantially as described.

4. The combination in an elevator and with the hoisting rope thereof, of a car frame, a safety device connected to said frame and rope, and a cage hung from said safety device and provided with a yielding bottom, substantially as described.

5. The combination in an elevator and with the hoisting rope thereof, of a car frame, a safety device connected to said frame and rope, and a cage hung from said safety device comprising a series of vertical rods carrying top and bottom pieces, a false bottom piece, and springs interposed between said bottom pieces, substantially as described.

6. The combination in an elevator and with the hoisting rope thereof, of a car frame, fixed rods at the sides of the frame, gripping levers sliding on said rods and connected to the hoisting rope, a cage hung in the frame and on said levers, and a false bottom to said cage mounted on springs, substantially as described.

7. In an elevator, a frame C running in suitable guides in the well, and a cage E mounted in said frame, comprising rods *e*, top and bottom pieces *e′*, false bottom *e″*, sliding on the rods *e*, and having springs F between said bottom piece and false bottom, in combination with rods D on each side of the frame, and safety levers H embracing said rods D and connected with the elevator rope, all substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 7th day of November, 1892.

PETER C. ZIMMERMAN.

Witnesses:

FREDERICK M. OTT,

M. W. JACOBS.