

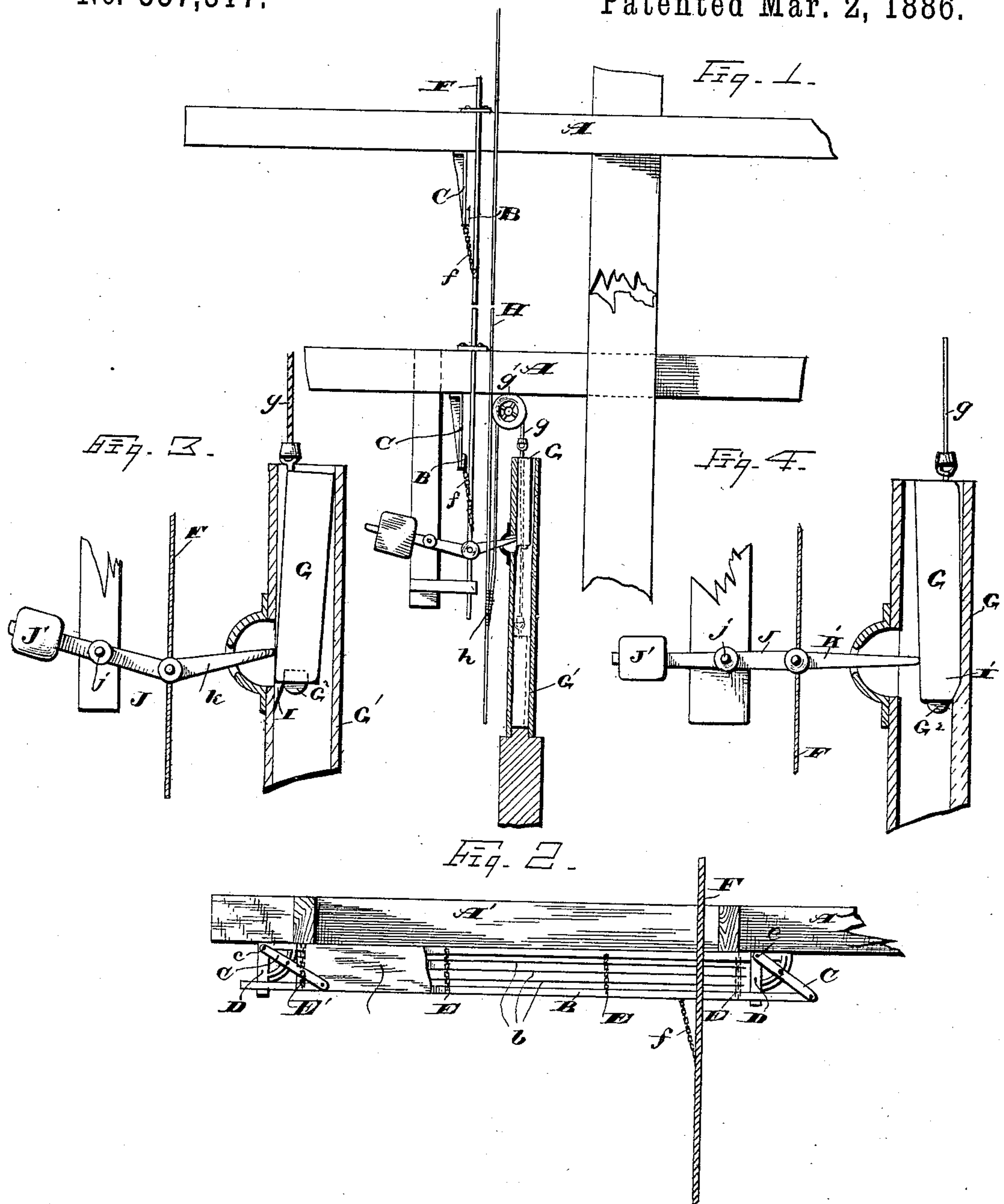
(No Model.)

H. R. FERRIS.

SAFETY ATTACHMENT FOR ELEVATORS.

No. 337,317.

Patented Mar. 2, 1886.



WITNESSES

Wm M. Monroe
Geo W. King

Hiram R. Ferris
INVENTOR

Leggett and Leggett
Attorneys

UNITED STATES PATENT OFFICE.

HIRAM R. FERRIS, OF CLEVELAND, OHIO.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 337,317, dated March 2, 1886.

Application filed January 6, 1886. Serial No. 187,796. (No model.)

To all whom it may concern:

Be it known that I, HIRAM R. FERRIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Safety Attachments for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make
10 and use the same.

My invention relates to improvements in safety attachments for elevators in which one or more bars, slats, or rods are suspended from each hatchway, so as to engage anything
15 projecting beyond the elevator-platform when the elevator is ascending. The bars, slats, or rods are supported by levers arranged substantially like what is known as a "parallel ruler," so that the bars, slats, or rods may
20 move upward. The bar, slat, or rod, or system of bars, slats, or rods suspended from each hatchway is connected with a vertical rod, cord, or cable, as the case may be, leading from top to bottom of the elevator-shaft,
25 the latter being connected with levers arranged to form a knuckle-joint, by operating which a suspended weight is released, said weight having a cord attachment that is connected with the shifting-cable of the elevator,
30 so arranged that the descent of the weight elevates the shifting-cable and stops the upward movement of the elevator, the object being to simplify the construction, to increase the efficiency and durability, and lessen the initial
35 cost of this class of elevator attachments.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

40 In the accompanying drawings, Figure 1 is a side elevation showing the suspended weight and the attachment for operating the same. Fig. 2 is a side elevation through the parallel rod suspended from a hatchway. Fig. 3 is an
45 enlarged elevation of the suspended weight and levers for operating the same. Fig. 4 is an enlarged elevation showing a modification of the suspended weight and attachments.

A represents the floors with hatchways A',
50 through which the elevator-platform (not shown) passes. On the front side—that is,

the side where freight or passengers are received or discharged—and under each hatchway is arranged a bar, rod, or slat, B, that is pivoted to the levers C, the levers in turn
55 being pivoted at c to the hangers D. Light chains E are secured to the lower side of the hatchway and to the bar B. These chains are of equal length, and are distributed at suitable intervals along the bar B—for instance, 60 as shown in Fig. 2. These chains form stops that limit the depression of the bar B to about ten inches (more or less) below the bottom of the hatchway, and the arrangement of parts is such that, with the bar B depressed, the le- 65 vers C are inclined in the same direction, as shown. The bar B is arranged flush with the face of the hatchway, so that when the elevator is ascending anything on the elevator that would clear the bar B will also clear the 70 face of the hatchway. If anything projected beyond the elevator-platform so as to come under the bar B, the latter would be carried up substantially in the manner that parallel rulers are closed. Rods b are passed through 75 the links of the chains E, and on the face—that is, the side next the elevator-platform—is secured a cloth screen, or netting of suitable material, that will fold easily as the system of bars or rods is elevated, by means of which 80 cloth or screen small articles or the toe of the foot cannot be thrust outward under the hatchway after having passed above the bar B.

By means of suitable mechanism, next described, when the bar B is elevated by contact 85 with anything projecting from the elevator the latter is stopped before the projecting object could come in contact with the hatchway, and consequently before any harm could be done. A cable, cord, wire, or rod, (we will 90 suppose the latter,) F, leads from top to bottom of the elevator-shaft, and is connected with each bar B by a chain or cord, f, the latter leading downward from the bar B, as shown in Fig. 2, so that when the bar B is 95 raised the rod F will be drawn upward. At some convenient place, which may be anywhere along the line of the elevator from cellar to garret, a weight, G, is arranged in a box or casing, G', with a cord, g, secured 100 to the weight and leading over a pulley, g', and from thence downward a suitable dis-

tance, and is attached to the shifting-cable H, for instance, at *h*.

In Figs. 1 and 3 the cord *g* is shown attached near the left-hand side of the weight, so that if the weight were drawn up by the cord the lower end of the weight would by gravity incline to the left hand, so as to rest on the slight shelf, ledge, or projection I, in which elevated position of the weight there is slack enough in the cord *g* to leave the shifting-cable H free to be operated in the usual manner. When the weight is pushed off of the shelf I, in its descent it draws on the cord *g*, and the latter draws up on the cable H, the length of the cord *g* being such that when the weight strikes the bottom of the casing the cable is drawn up to the point that stops the elevator in its ascent. A lever, J, is pivoted at *j* and jointed to the lever K, and at the joint these levers are connected in any suitable manner with the rod F. A weight, J', is arranged to more or less counterbalance the weight of the rod. When the knuckle-joint formed by the levers J and K is bent downward, as shown in Fig. 1, the outer end of the lever K rests against the side of the weight G. Now, when a bar B is elevated, causing, as aforesaid, the rod F to be elevated, the knuckle-joint is raised or straightened, so that the lever K pushes the weight G off the shelf I, when, by means of the descending weight, the shifting-cable is drawn up and the elevator stopped. After the elevator has been thus stopped and the projected obstruction removed, the weight G is drawn up by hand or other means, and made to rest on the shelf I, and the knuckle-joint is again adjusted, as shown in Figs. 1 and 3, after which the elevator is in condition to run.

In Fig. 4 is shown a modification where a sloping shelf, ledge, or projection, I', engages a correspondingly-beveled lower edge of the weight, and the knuckle-joint is set in a straight line to hold the weight on the shelves or ledge. With such construction, when the rod F is elevated, it draws the knuckle-joint upward and releases the weight, so that the latter slides off of the shelf.

It will be observed that I use no spring-catches or any mechanism that is liable to break or become disarranged from wear or accident.

A rubber block, G², is attached to the bottom of the weight G to cushion the same when it descends to the bottom of the casing.

What I claim is—

1. In a safety attachment for elevators, the combination, with a hatchway, of a bar, slat, or suitable device held suspended under the hatchway and parallel and flush with the face of the latter, said bar or slat being pivoted to inclined levers that operate in the same plane with the said bar or slat, said levers inclining in the same direction, substantially as set forth.

2. In a safety attachment for elevators, the combination, with a hatchway, and a bar or suitable device suspended under the hatchway and pivoted to levers, substantially as described, of chains secured to the hatchway and to the suspended bar to limit the depression of the latter, substantially as set forth.

3. In a safety attachment for elevators, the combination, with a hatchway, and a bar or suitable device pivoted to inclined levers and held suspended under the hatchway, with chains to limit the depression of the suspended bar, of rods inserted in the links of said chains, the parts being arranged substantially as set forth.

4. In a safety attachment for elevators, the combination, with a hatchway, a suspended bar, inclined lever, chains, and rods secured in said chains, substantially as described, of a cloth screen, netting, or suitable flexible device arranged to extend on the face of such bars, rods, and chains, so as to fold with the same, substantially as set forth.

5. In a safety attachment for elevators, the combination, with a hatchway, a suspended bar, and inclined levers arranged substantially as described, of a cloth or suitable flexible material secured to the hatchway and to the suspended bar, so as to fold when the latter is elevated, substantially as set forth.

6. In a safety attachment for elevators, the combination, with a hatchway, and a bar or suitable device held suspended under the hatchway, of a cloth or suitable flexible material secured to the suspended bar, so as to close the opening between the bar and hatchway, said cloth being arranged to fold when the bar is elevated, substantially as set forth.

7. In a safety attachment for elevators, the combination, with a weight for reversing the shifting-cable to stop the ascent of the elevator, of a shelf, ledge, or projection for engaging the weight and holding the latter elevated and inoperative, and suitable mechanism for automatically disengaging the weight from such shelf, ledge, or projection, substantially as set forth.

8. In a safety attachment for elevators, the combination, with a weight for reversing the shifting-cable, and a shelf, ledge, or projection for holding the weight elevated and inoperative, of levers forming so-called "knuckle-joints," arranged for disengaging the weights from such shelf, ledge, or projection, the parts being arranged substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 23d day of December, 1885.

HIRAM R. FERRIS.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.