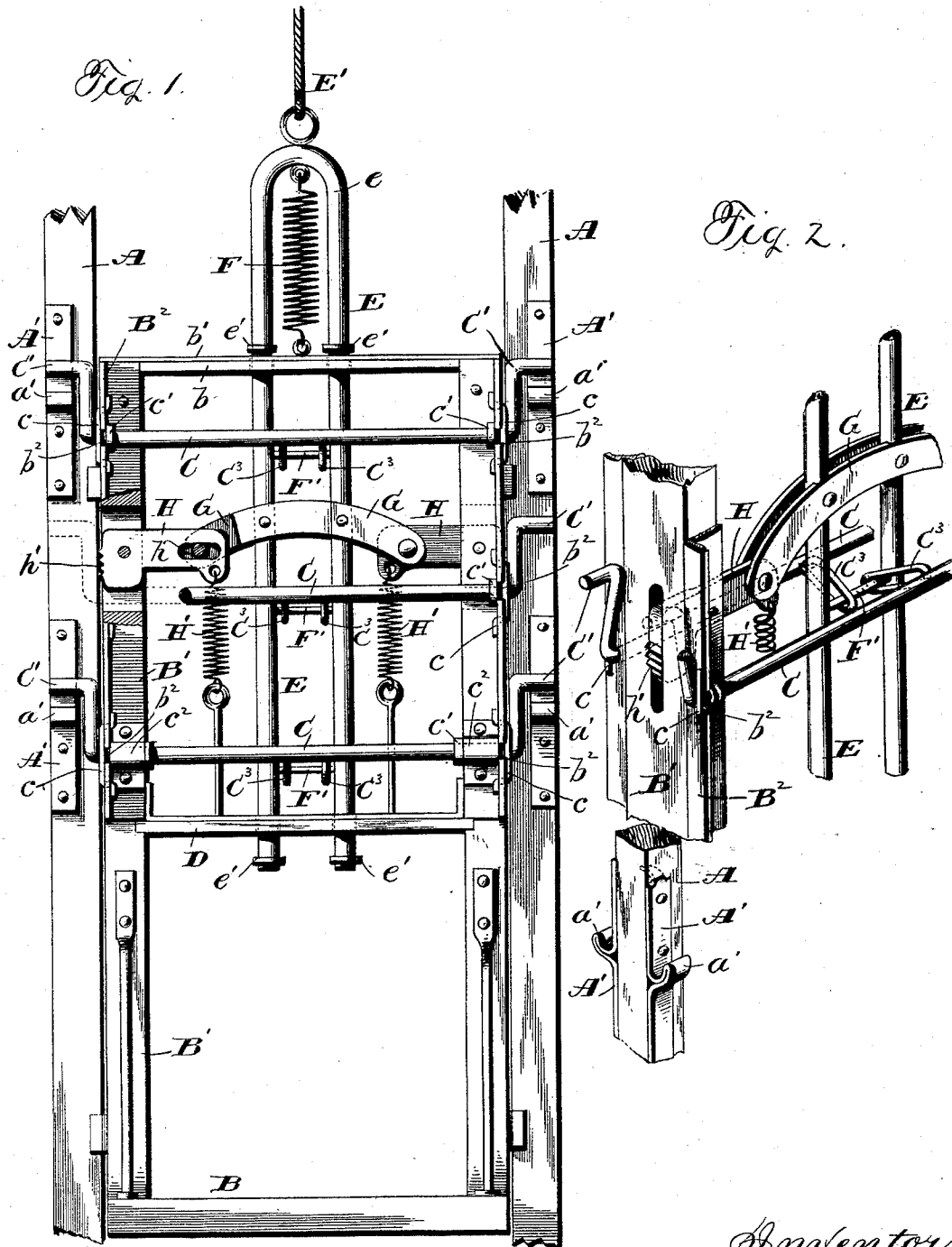


(No Model.)

J. MESSNER.
SAFETY ATTACHMENT FOR ELEVATORS.

No. 483,569.

Patented Oct. 4, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB MESSNER, OF CALUMET, MICHIGAN.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 483,569, dated October 4, 1892.

Application filed April 13, 1892. Serial No. 428,986. (No model.)

To all whom it may concern:

Be it known that I, JACOB MESSNER, a citizen of the United States, residing at Calumet, in the county of Houghton and State of Michigan, have invented certain new and useful Improvements in Safety Attachments for Elevators; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in elevators, and more particularly to safety devices therefor; and it has for its objects, among others, to provide a simple, durable, and efficient construction, in which provision shall be made for the stopping of the elevator at once in case of breakage of any of the parts and in which there are two independently-operating safety arrangements, the one being designed in case the other should fail. Both may act together at predetermined intervals. I provide cam-stops, which are designed to engage the inner faces of the uprights and which are operated by the weight of the elevator-car. These cam-stops have springs to normally hold them distended, and a plurality of rock-shafts are provided, each carrying or attached to crank rods or arms which engage stops on the opposite faces of the uprights. These are also actuated by the weight of the elevator-car and are loosely connected with the devices which actuate the cam-stops. Each set of devices is provided with its own springs and each may operate independently of the other. Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The features and advantages above outlined are accomplished by the construction and arrangement of parts hereinafter specified; and the invention consists in the peculiar construction and the novel combinations, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the

drawings, and then particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a front elevation with a portion of the uprights broken away to show the cam-stops. Fig. 2 is a detail of the cam-stops and their connections.

Like letters of reference indicate like parts in both views where they appear.

Referring now to the details of the drawings by letter, A designates the uprights or guides, which may be of any well-known or approved form of construction. They are connected at their upper ends in any suitable manner, and upon their opposite faces they are equipped with plates A', which are bent upon themselves to form stops a', the ends being held in the uprights in any suitable manner. There may be as many of these stops as may be desired arranged at suitable distances apart. While the form of stops shown are those preferred, yet others may be employed in their stead, and it is intended that this application shall include and the claims cover any form of stop that will serve the purpose. The upper surfaces of the stops are preferably somewhat rounded, although this is not necessary.

B is the elevator car or platform. It is carried by the vertical side posts B', to which it is suitably secured and braced, and the upper ends of which are connected by the cross-bar b, which may be strengthened by a metallic plate b', if necessary. To the front and rear faces of these side posts are secured the metallic plates B², which are substantially-L-shaped, and in the portions extending at right angles to the faces of the posts are formed slots b², in which are journaled the rock-shafts C, which are removably held therein in any suitable manner, as by the detachable rods c or any other suitable devices, the shafts being provided inside the said plates with collars c' to prevent endwise movement of the shafts. These shafts have their ends turned at right angles to their lengths, and then again at right angles to form the crank-arms

C', which are designed to engage the stops on the uprights A in a manner which will soon be explained. These shafts may have additional bearings, as shown at c², if desired or found necessary.

D is a cross-bar, which may be suitably braced and strengthened, and is connected to the posts B' at a suitable distance below the cross-bar b.

E is a rod bent upon itself at its center to form the bend or eye e at its upper extremity and to which the hoisting-rope E' is connected in any suitable manner, the said rope being designed to run over the pulleys in the usual manner, and the latter are therefore not shown. The vertical parallel portions of this rod are arranged to slide freely through openings in the cross-bars b and D, as shown, they being provided with suitable collars e' above the upper cross-bar and below the lower one to limit their movement in both directions. The bend or eye of the rod is connected with the upper cross-bar in any suitable manner by a spring F.

F' are rods or bars connecting the parallel portions of the said rod at suitable intervals, corresponding to the location and number of the rock-shafts, and each rock-shaft carries a link or loop C³, which loosely embraces one of these rods or bars, those from opposite sides of the uprights on the same plane embracing the same rod or bar. The links or loops are fixedly secured to the rock-shafts so as to turn therewith.

G are bars, preferably arched or curved, secured to the parallel portions of the rod E and extended beyond the same upon opposite sides.

H are arms pivotally connected with and between the outer ends of the bars G, the pivot having slight loose play in elongated slots h, and their inner ends are connected with a spring H', which is connected in any suitable manner with the lower cross-bar D, as shown in Fig. 1. The outer ends of these arms H are pivotally held in the posts B' through suitable slots in which they work, and the outer ends are formed cam shape and are preferably toothed, as seen at h', and are designed to engage the inner faces of the uprights A. They may be arranged to engage with rack-bars on the said uprights, if desired.

With the parts constructed and arranged as above set forth, which is at what I at present consider the preferable way of carrying out my invention, the operation will be readily understood. Normally the rock-shafts and the cam-stops are in their inactive position—

that is, the cam-shafts are with their crank-arms vertical, so as to disengage the stops on the uprights, and the cam-stops are withdrawn from their engagement with the uprights by reason of the weight being sustained by the hoisting-rope; but should this rope break, then the weight no longer being sustained thereby will cause the rod E to drop, being aided by its springs, and the cam-stops will be thrown out, and at the same time the cross-rods and the loops engaging therewith turn the rock-shafts so that their crank-arms will fall into the stops on the uprights and the car will thus be stopped.

The parts are automatic in their action, sure, not liable to get out of order, and readily assembled or dissembled for the purpose of repairs.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. The combination, with the uprights with stops, of the elevator-car, the rock-shafts journaled on the side posts of the car and provided with projecting crank-arms, the bent rod, and the connections between the bent rod and the rock-shafts, substantially as shown and described.

2. The combination, with the uprights with stops, of the elevator-car, the rock-shafts journaled on the side posts of the car and provided with projecting crank-arms, the bent rod and the spring connecting the bent rod with the car, and the connections between the bent rod and the rock-shafts, substantially as shown and described.

3. The combination, with the uprights and the car, of the movable bent rod E and the collars on the said rod, and the bar G, secured to the bent rod and carrying pivoted arms, and the springs connecting said arms with the car, substantially as shown and described.

4. The combination, with the uprights and the car, of the movable bent rod E and the collars on the said rod, and the bar G, secured to the bent rod and carrying pivoted arms, and the springs connecting said arms with the car, and a loose connection between the pivoted arms and the bar G, all substantially as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

JACOB MESSNER.

Witnesses:

MORGAN WILLIAMS,
FRED MACKENZIE.