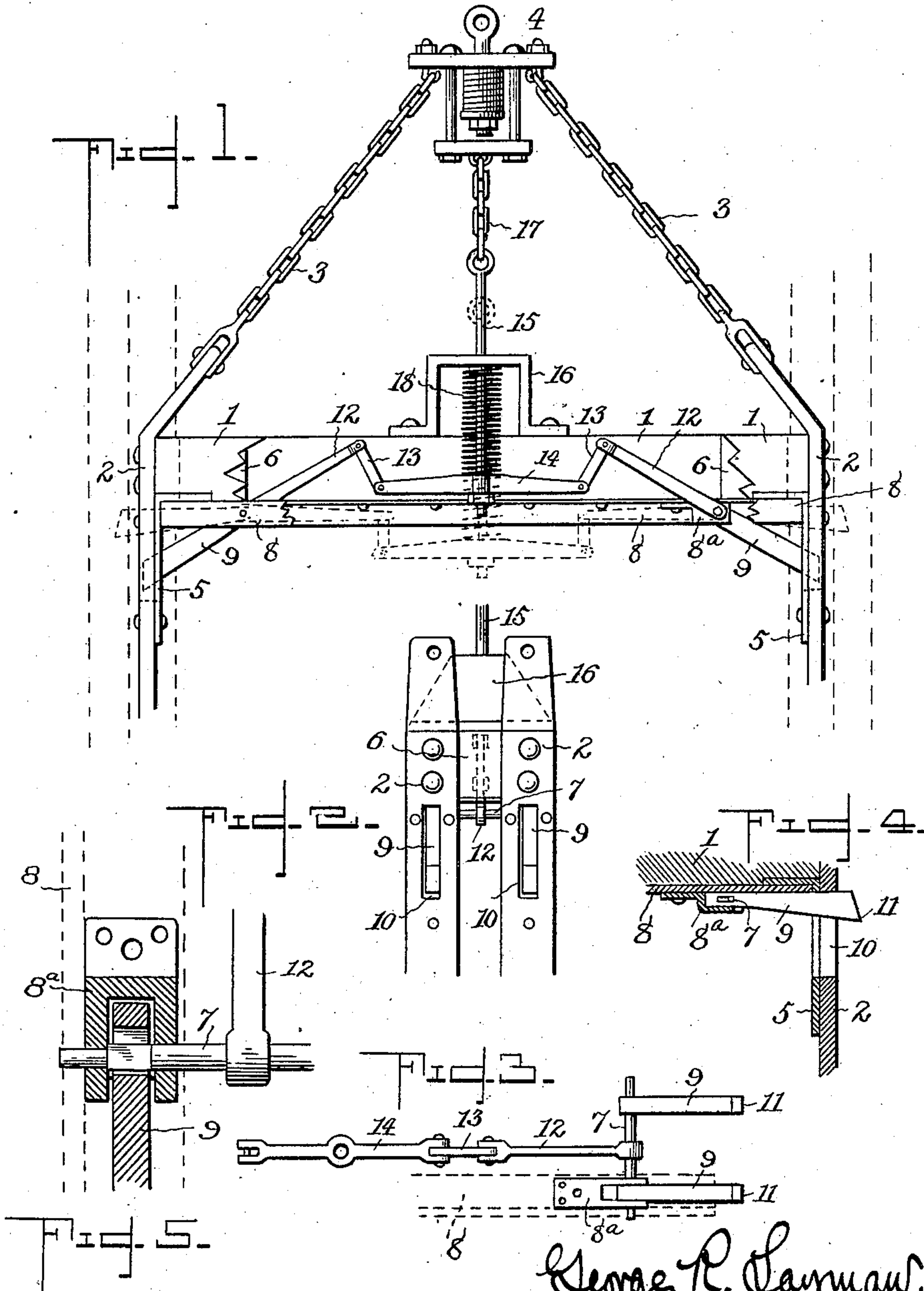


No. 847,083.

PATENTED MAR. 12, 1907.

G. R. LAYMAN.
SAFETY DEVICE FOR ELEVATORS.
APPLICATION FILED JUNE 9, 1906.



Witnesses:-

R. J. Beall
S. E. Thomas

By

Inventor,

George R. Layman
John Thomas Co.
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE R. LAYMAN, OF LINCOLN, ILLINOIS.

SAFETY DEVICE FOR ELEVATORS.

No. 847,083.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed June 9, 1906. Serial No. 320,980.

To all whom it may concern:

Be it known that I, GEORGE R. LAYMAN, a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented certain Improvements in Safety Devices for Elevators, of which the following is a specification.

This invention is an improvement in safety devices for elevators, and is designed more especially for application to the type of car or mining-cage shown and described in my prior patent, No. 809,117, dated January 2, 1906.

The objects of the present invention are to provide a construction of safety device that shall be entirely automatic in operation, quick and positive in its action, and in which the engaging dogs when thrown into operation will be firmly and rigidly supported in connection with the framework of the car to successfully resist the strain which will come upon them in use.

With these principal objects in view the invention consists in the particular construction and combination of parts, all as hereinafter fully described, and specifically set forth in the appended claim.

In the accompanying drawing, which forms a part of this specification, Figure 1 is an elevation showing the application of the invention to a mining car or cage. Fig. 2 is an end view of Fig. 1. Fig. 3 is a detail view of certain parts of the device. Fig. 4 is a sectional view illustrating the operative position of the engaging dogs with respect to the framework of the cage or car. Fig. 5 is a detail sectional view of one of the bearing-boxes for the transverse shafts, which carry the dogs.

Like numerals of reference indicate like parts in all the figures of the drawing.

As hereinbefore stated, my invention is especially adapted for application to the construction of mining car or cage shown in my prior patent referred to, and in the accompanying drawing I have shown only the upper part of the cage, or so much as will illustrate the connection of the safety devices thereto.

1 1 designate a pair of beams, which form the upper part of the cage, and 2 2 designate flat bars or plates which constitute the sides thereof, said flat bars or plates being secured to the beams and are extended at an inward angle above the same to provide a connection for the chains 3, which are attached to the usual cable-connecting device 4. The

connection of the beams 1 and bars or plates 2 is reinforced by the angle-plates 5, and as the beams are spaced apart by means of the blocks 6 certain parts of the safety device hereinafter described are located between said beams.

At the under side of the pair of beams 1, near each end thereof, is located a transverse shaft 7, which is journaled at its ends in the angle-bars 8 and boxes 8^a, secured to said beams, and upon this shaft are mounted to turn therewith a pair of dogs 9, the outer or free ends of which play in slots 10, formed in the side bars 2 and angle-plates 5. The free ends of these dogs normally lie within the plane of the outer surface of the side bars 2, as shown in Fig. 1, and when the dogs are swung upward to an operative position by the operating means hereinafter described said ends project, so as to engage the walls of the elevator-shaft. (Indicated in dotted lines, Fig. 1.) In order that the dogs may bite into the walls of the shaft, their ends are beveled to provide a sharper edge 11, and so that said dogs may turn with the shaft the latter is squared where it passes through the dog, as shown in Fig. 4.

Secured to the intermediate portion of each transverse shaft 7 is an arm 12, which is connected by a link 13 to a bar 14, the latter being mounted on the lower end of a vertical rod 15, which passes upward through a guide-bracket 16 on the beams 1 and is connected by a short chain 17 to the cable-connecting device 4. This connection between the shaft 7 and device 4 is such that when the weight of the cage is upon the hoisting and lowering cable the dogs 9 will be in their normal position, and when the pull upon the rod 15 is released the bar 14 will drop to the position indicated in dotted lines, Fig. 1, and through its connection with the shafts 7 will turn the latter so that the dogs will be thrown outward or into engagement with the walls of the elevator-shaft. Thus it is obvious that in the event of a break in the hoisting and lowering cable or its connections with the cage the rod and bar will drop and throw the safety devices into operation, and in order that this operation may be effected more quickly and positively an expansion-spring 18 is interposed between the bar 14 and guide-bracket 16, said spring encircling the rod 15, so as to be held in place thereby.

From the foregoing description, in connection with the accompanying drawing, the op-

eration of the device will be clearly understood, and it will be particularly noted that when the dogs are thrown outward or into operative engagement with the uprights of the elevator-shaft they will have a bearing along nearly their entire length against the angle-bar 8 and the upper walls of the slots in the angle-plate 5 and side bars 2, whereby they will effectually withstand the strain that will come upon them when they take the weight of the cage.

It will be readily seen that the device can be readily and conveniently applied to the style of cage illustrated in my prior patent and without materially changing any of the parts constituting said cage.

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

In a safety device for elevator or mining cages, the combination with the parallel beams and flat side bars constituting the upper part of the cage, of the transverse shafts

7 having squared portions near their ends, boxes 8^a through which the ends of the shaft project, said boxes being open at their outer ends and closed at their inner ends providing a wall or abutment at the rear end of each box, and dogs 9 having slots in their rear ends by which they are mounted on the squared end portions of the shafts within the boxes and so that the abutments may receive the end thrust of the dogs; together with a movable bar connected to the shafts by links 13 and arms 12, a rod connecting said bar to the connecting device for the hoisting and lowering cable, and a spring adapted to actuate the bar, as shown and described.

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

GEORGE R. LAYMAN.

Witnesses:

A. D. CADWALLADER,
J. E. JEWETT.