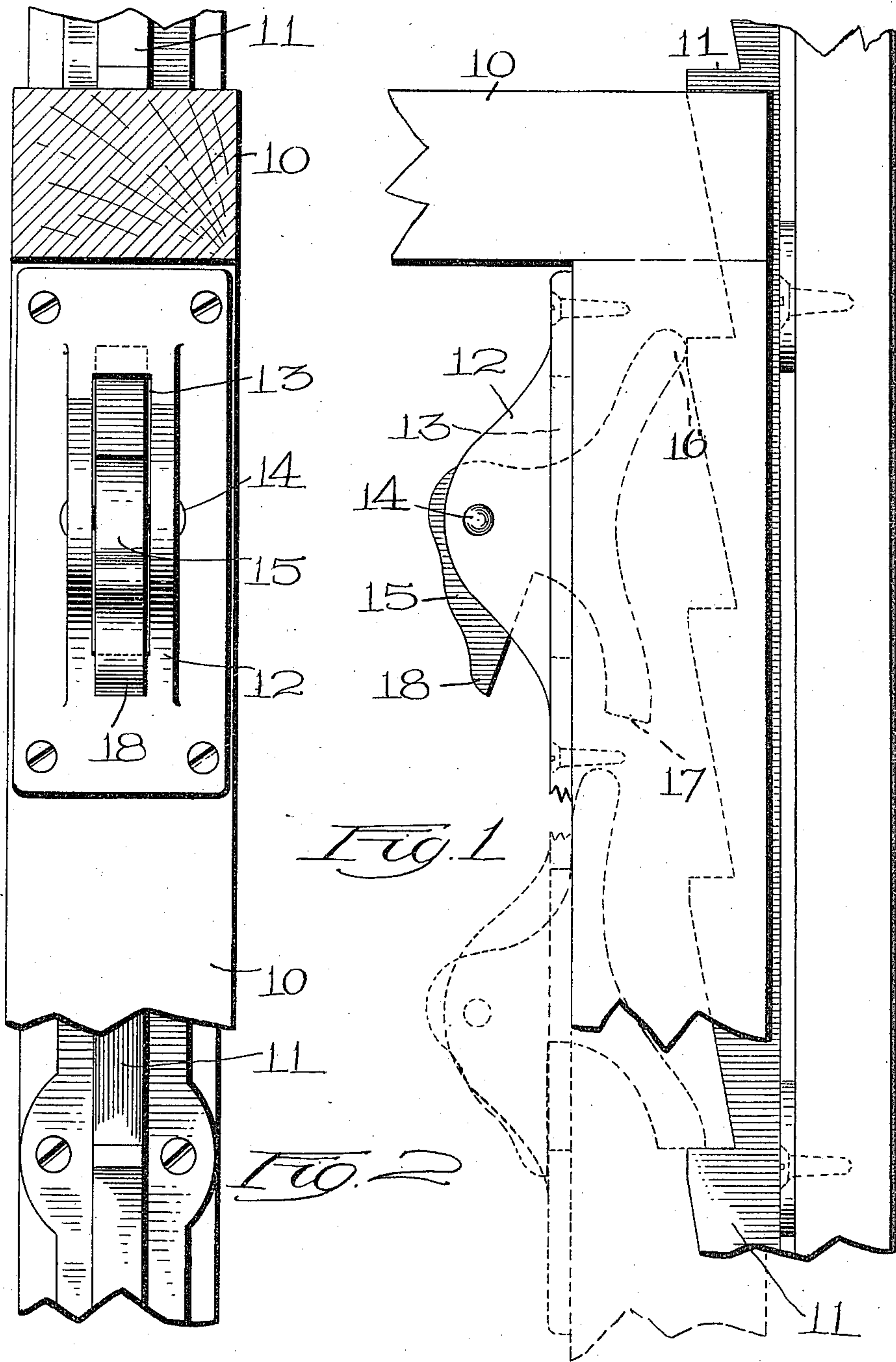


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ELEVATOR SAFETY DEVICE.
APPLICATION FILED MAY 7, 1910.

975,828.

Patented Nov. 15, 1910.



Witnesses:

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ELEVATOR SAFETY DEVICE.

975,828.

Specification of Letters Patent.

Patented Nov. 15, 1910.

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To all whom it may concern:

Be it known that I, AUGUSTUS L. BUSH, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Elevator Safety Device, of which the following is a specification.

This invention relates to a safety device for elevators.

I am aware of the fact that many safety attachments have been invented for use on elevators and that some of them have been of a design which would seem to work properly in theory, but as far as I am aware they have been defective and uncertain in practical operation largely because they depend in many instances on springs and other connections or because they require connection with the cable and cannot operate until the cable slackens.

The principal object of this invention is to provide an exceedingly simple and inexpensive stopping device for an elevator which will require the installation of no coöperating mechanism except a simple rack along the elevator well; which can be applied to all types of elevators, either when being manufactured or after they have been in use, without displacing any of the parts which they now carry; and which will be absolutely certain in operation under all conditions.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing in which,

Figure 1 is a front elevation of a portion of an elevator well showing part of a car and rack with a preferred embodiment of this invention thereon, showing also the position of the same in dotted lines when operating to stop the car, and Fig. 2 is a side elevation of the same.

As this safety device works entirely independently of the cable the latter is not shown; also as when two of them are used on opposite sides, they are entirely unconnected and independent of each other, only one is illustrated in the drawings. This is shown as mounted on a car 10 which works in a well provided along the side of the same with a vertical rack 11 having the usual teeth thereon projecting directly toward the car. The size of the teeth is immaterial to the operation of this device but the safety attachment is designed in proportion to the

teeth; that is the longer the teeth, the larger the safety attachment.

This attachment consists of a casting or forging 12 secured on the front of the car in any desired position near the side. This bracket is provided with a passage 13 there-through and the casing of the car is also provided with a passage extending therefrom to its outer surface. The bracket 12 is provided with a pivot pin 14 on which is pivoted the safety catch 15. This safety catch has a main body extending outwardly from the pivot provided with an upwardly extending arm 16 having a rounded upper surface and projecting out in such position as to engage the teeth on the rack as the car moves up or down. It also has a lower projecting arm 17 located and formed so that normally gravity holds the upper arm nearer the rack than the lower arm. As the end of the arm 16 rides over the teeth, the arm 17 vibrates at a distance beyond the ends of the teeth without touching them. However, this is so arranged that if the car drops the first, or at least the second, tooth that the arm 16 strikes will give it a blow which swings the whole latch on its pivot so as to throw the arm 17 in where it will strike the next tooth below as the elevator continues to drop. This will bring the parts into position shown in dotted lines at the bottom of Fig. 1. The catch is stopped positively in this position by a downwardly extending stop 18 on the catch. This stop moves in and engages the casting or forging 12 and prevents the parts from being thrown inwardly beyond a certain limit.

It has been found in practice that under all conditions which the applicant has been able to apply, the car cannot be made to drop more than the space of two teeth when this attachment is in operation. It sometimes fails to work on the first tooth but invariably works on the second. Of course the failure to work on the first tooth depends on the position of the arm 16 when the car starts to drop.

The operation of the device will be fully understood from the description of the mechanism which has been given.

It will be observed that this latch consists of a single integral piece of metal pivoted on the bracket 12 and that it is entirely without springs or external operating devices of any character. It will be seen also that as it is pivoted near one side and both

arms 16 and 17 project from the other side at a distance from the pivot, gravity will normally tend to swing the arms 16 and 17 down which will bring the arm 16 out
5 against the teeth of the rack. On account of this construction, no adjustment of the parts is required, the only thing necessary being to tip the latch over so that the arms
10 16 and 17 will both be on the same side of the pivot. The device will then naturally fall into proper position for operation if the rack is located at a suitable distance from the pivot.

While I have illustrated and described
15 a preferred embodiment of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the
20 details of construction herein shown and described, but

What I do claim is:—

1. In an elevator safety device, the combination with an elevator car and a single
25 rack along the side thereof, of a latch pivoted on the car and having an upwardly extending arm adapted to engage and be operated by the teeth of the rack as the car moves

and provided with a downwardly extending arm in the same plane as the upwardly extending arm, and beyond the plane of the edges of the teeth of the rack during the ordinary operation of the car, but in position
30 to be thrown out into engagement with said teeth when the car drops suddenly. 35

2. In a safety device for elevators, the combination of a bracket adapted to be mounted on a car, a horizontal pivot pin thereon, a latch consisting of a single integral piece of metal pivoted on said pin
40 and having an upper and a lower arm in the same plane projecting outwardly therefrom toward the adjacent wall of the elevator well, both of said arms being on the
45 same side of the pivot, whereby gravity will swing the latch over in position for the upper arm to project beyond the lower arm, and a rack along the elevator well in position to engage both arms. 50

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

AUGUSTUS L. BUSH.

Witnesses:

ALBERT E. FAY,
C. FORREST WESSON.