No. 751,328. PATENTED FEB. 2, 1904.

H. F. McDONALD.

SAFETY CATCH FOR ELEVATORS.

APPLICATION FILED SEPT. 30, 1903.

NO MODEL.

Fig. 1.

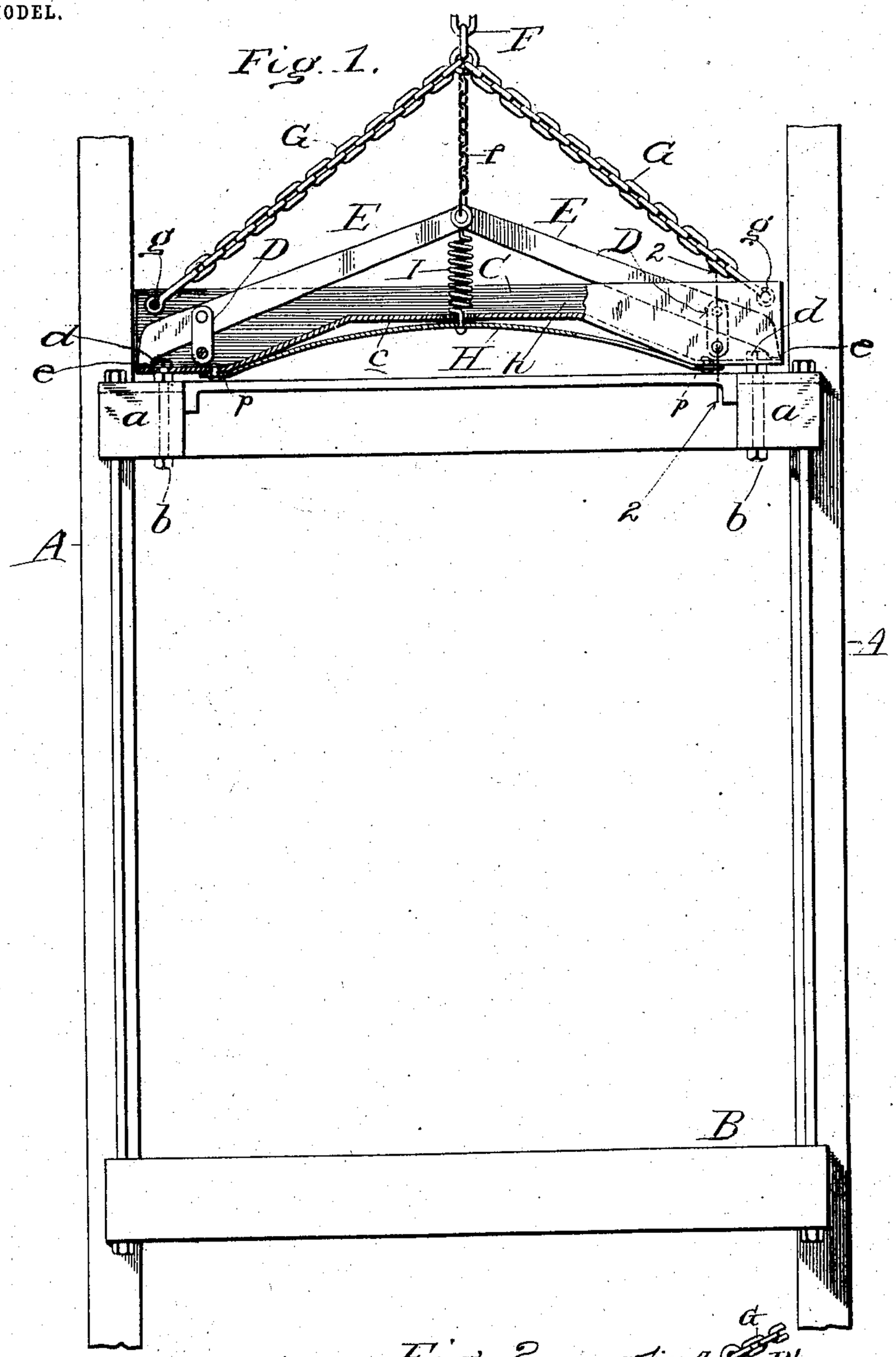


Fig. 3.

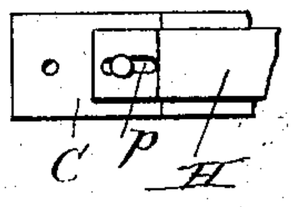


Fig. 2.

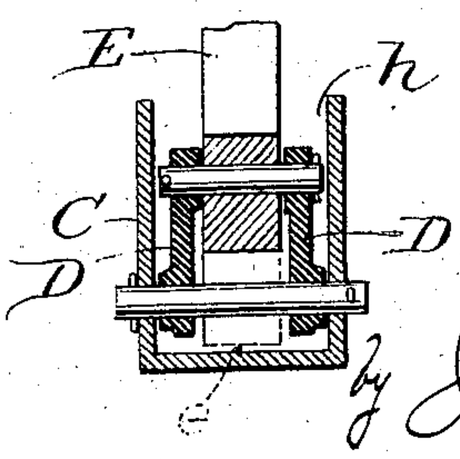
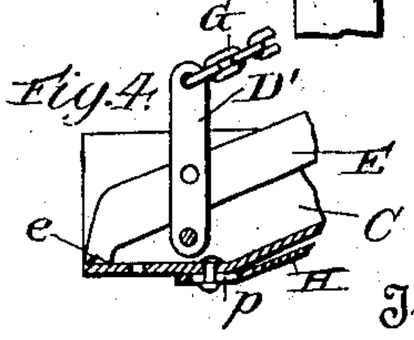


Fig. 4.



Witnesses

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No. 751,328. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

HENRY F. McDONALD, OF FONTANET, INDIANA.

SAFETY-CATCH FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 751,328, dated February 2, 1904.

Application filed September 30, 1903. Serial No. 175,195. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. McDONALD, a citizen of the United States, residing at Fontanet, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Safety-Catches for Elevators, of which the following is a specification.

My invention pertains to safety-catches for elevators; and it has for its object to provide a safety-catch which is simple and inexpensive in construction and yet is highly reliable in catching and sustaining an elevator-car in the event of the hoisting-cable breaking or the hoisting machinery getting out of order.

The invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view, partly in front elevation and partly in vertical section, of the construction constituting the preferred embodiment of my invention. Fig. 2 is an enlarged detail transverse section taken in the plane indicated by the line 2 2 of Fig. 1. Fig. 3 is a detail view illustrating the manner in which the bowed spring of the catch is connected to the channel-bar thereof. Fig. 4 is a detail view of a modification hereinafter referred to.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A A are guides such as are usually provided in elevator-shafts, and B is an elevator-car having shoes *a* movable on the said guides. These parts may be of the ordinary or any other approved construction without involving a departure from the scope of my invention.

C is a channel-bar, preferably of pressed steel, which constitutes the body of my novel catch. This bar is arranged on the top of the car B, with its ends adjacent to the guides A, and is fixedly connected to the car, preferably through the medium of bolts *b*, which extend through the bottom wall *c* of the bar and have heads *d* disposed above said bottom wall, as shown, for a purpose presently pointed out.

D D are vertical links arranged in pairs in the channel-bar adjacent to the ends thereof and pivotally connected at their lower ends to the side walls of said bar, and E E are dogs fulcrumed at points intermediate of their ends between the upper portions of the links. These dogs have the ends of their outer arms beveled or otherwise adapted to take hold of the guides A, and they are provided on the under sides of said outer arms with shoulders *e*, arranged to normally abut against the heads *d* of the bolts *b*, this with a view of retaining the outer ends of the dogs in positions adjacent to the guides A, and thereby assuring the dogs promptly engaging the guides when the emergency arises. The inner arms of the dogs are connected to a chain *f*, which in turn is connected to a cable F. In this connection I desire it understood that the chain *f* and the cable F may be formed integral—*i. e.*, the cable may be extended down to the dogs without involving departure from the scope of my invention.

G G are chains connected at their inner ends to the cable F and at their outer ends to clevises *g* on the end portions of the bar C.

H is a bowed spring arranged in a concavity *h* at the under side of the bar C and connected at its ends to the bottom of said bar, and I is a coiled spring extending through an opening in the bottom of the bar C and interposed between and connecting the bowed spring and the inner arms of the dogs. The spring H is connected to the bottom of the bar C by bolts which extend loosely through longitudinal slots *p* in the end portions of the spring after the manner shown in Fig. 3.

In the practical operation of an elevator equipped with my improvements the pull which the cable F exerts on the inner arms of the dogs E serves to normally hold the dogs in the position shown—*i. e.*, with their outer ends resting adjacent to but out of engagement with the guides A and this against the action of the springs H and I. In the event, however, of the cable F breaking or the hoisting machinery getting out of order and slackening said cable it will be observed that the springs H and I will quickly and forcibly draw the inner arms of the dogs down, and thereby throw the outer arms of said dogs into engagement with the guides A. It will

also be observed that the springs will hold the outer arms of the dogs in engagement with the guides, and thereby preclude downward movement of the car.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

When desirable, the clevises *g* may be omitted and the chains G connected to upwardly-extended portions of links D′ after the manner shown in Fig. 4 without involving a departure from the scope of my invention.

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

1. In a safety-catch for elevators, the combination of an elevator-car, guides therefor, a channel-bar arranged on and fixed to the car, with its ends adjacent to the guides, and having a concavity at its under side, vertical links pivoted in the channel-bar, dogs fulcrumed on said links, and having outer arms adapted to engage the guides, a cable connected with the inner arms of the dogs, and also connected with the car, a bowed spring arranged in the concavity of the channel-bar, and connected at its ends thereto, and a coiled spring extending through an opening in the bottom of the channel-bar, and connecting the bowed spring and the inner arms of the dogs.

2. In a safety-catch for elevators, the combination of an elevator-car, guides therefor, a channel-bar arranged on the car, with its ends adjacent to the guides, and having a concavity at its under side, bolts connecting the channel-bar and the car, and having heads disposed above the bottom of the latter, vertical links pivoted in the channel-bar, dogs fulcrumed on said links, and having outer arms adapted to engage the guides; said outer arms having shoulders adapted to normally bear against the bolt-heads, a cable connected with the inner arms of the dogs, and also connected with the car, a bowed spring arranged in the concavity of the channel-bar, and connected at its ends to said bar, and a coiled spring extending through an opening in the bottom of the channel-bar, and connecting the bowed spring and the inner arms of the dogs.

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

HENRY F. McDONALD.

Witnesses:
H. M. EDWARDS,
A. A. SOURWINE.