(No Model.)

E. X. GENOUD.

SAFETY STOP FOR ELEVATORS.

No. 599,999. Patented Mar. 1, 1898.

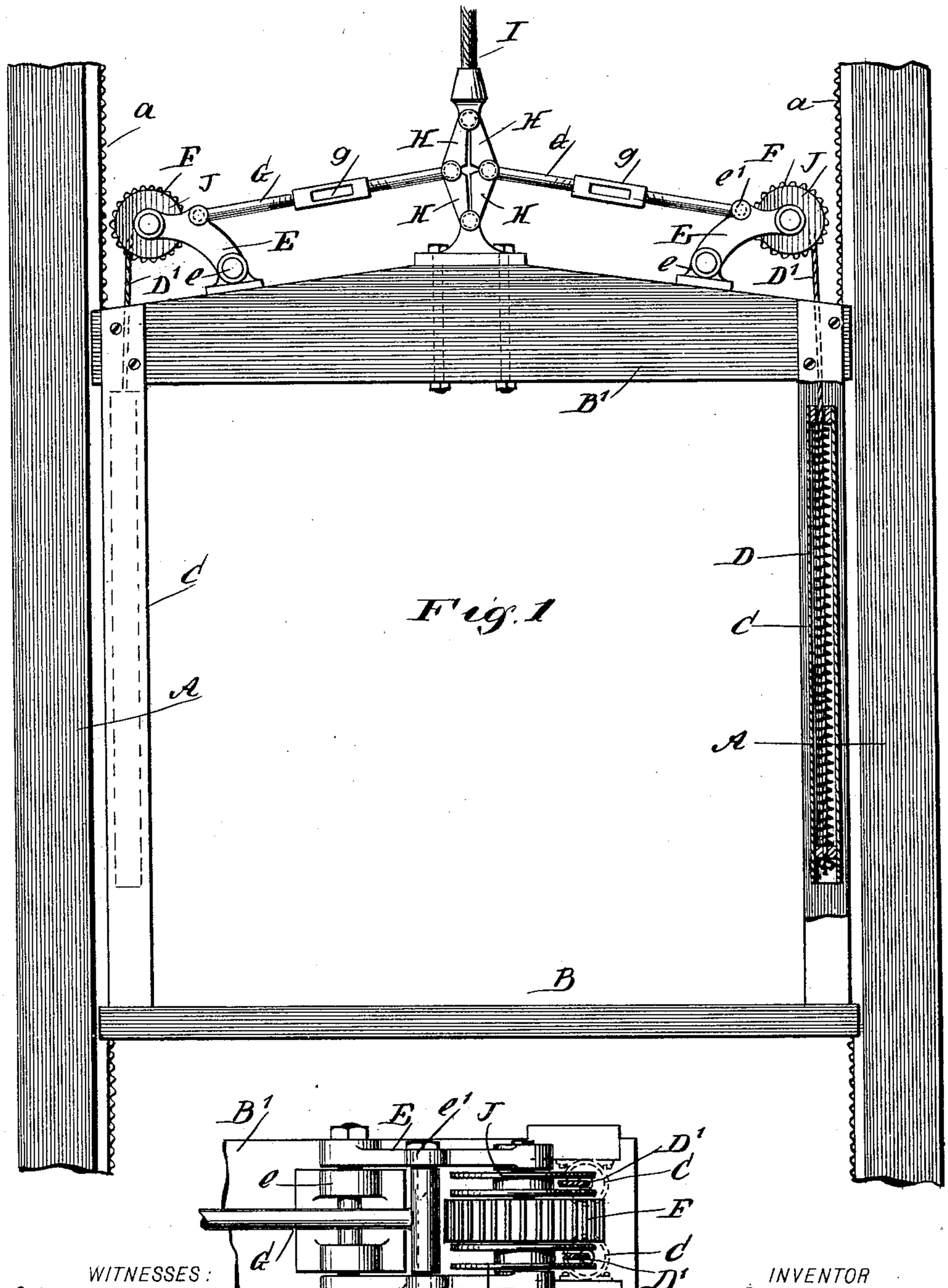

Fig. 1

Fig. 2

WITNESSES:

John E. Sinclair

H. L. Reynolds.

INVENTOR

E. X. Genoud.

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EUGENE X. GENOUD, OF NEWARK, NEW JERSEY.

SAFETY-STOP FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 599,999, dated March 1, 1898.

Application filed November 30, 1897. Serial No. 660,269. (No model.)

To all whom it may concern:

Be it known that I, EUGENE X. GENOUD, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Safety-Stop for Elevators, of which the following is a full, clear, and exact description.

My invention relates to an improvement in the mechanism of safety devices intended for stopping elevators in case the suspending-cable should break, and thus preventing their falling to the bottom of the shaft.

The invention consists of certain improvements, which will be hereinafter particularly described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is an elevation in partial section, showing my device as applied to an elevator; and Fig. 2 is a top plan view of the mechanism located upon one side of the elevator.

Fig. 1 shows at each side a section A of the wall of the elevator-well and of a beam which is placed at each side of the elevator-cage, and which may in some constructions act as a guide for the elevator-cage to run upon. This beam may be of any suitable construction, but as shown in the drawings is provided with a rack *a*, placed upon the side which is toward the center of the well. This might with some constructions be simply a plain wooden beam; but the use of the rack, as shown, is thought to be preferable.

The elevator-cage B is provided at its upper end, preferably upon the cross-beam B′, which carries the elevator-cage, with levers E, pivoted at *e* to the beam near each end. The levers E extend outward and upward, being of such a length that when they are extended horizontally the wheels F, which are mounted in their outer ends, will be projected far enough to firmly engage the rack *a*, or the beam A if the rack is omitted.

The levers E are connected to the suspending mechanism of the elevator-cage by means of the connecting-links G, which are made double or of two parts united by a turn-buckle *g*, so that they may be adjusted in length. The other ends of the links G are connected to the toggle-links H, which are pivoted at one end, respectively, to the elevator-cage and to the lower end of the suspending-cable I and at their other ends to each other and to the links G. This forms a toggle-joint device having the connection of the link G at the center thereof. The weight of the elevator-cage will normally keep these links extended, so that the levers E are kept in a raised position, such that the wheel F is freed from the rack *a*.

In the construction shown in the drawings the levers E are made double—that is, one placed at each side of the wheel F. The shaft upon which the wheel F turns is also provided with one or more drums or spools J, which are adapted to receive the cables D′. These cables are wound upon the drum in such a manner that when the wheel is rotated by engagement with the rack the cable will be wound upon the drum. The cable is extended from the drums down through the top of the elevator-cage and into pockets C, formed in the side of the elevator-cage. Within these pockets C, which are preferably formed by a metal tube, are placed spiral springs D, which are compressed by the upward movement of the cables D′, said cables being attached to the lower ends of the springs. The springs D normally are under sufficient tension to cause the levers E to be thrown outward far enough to engage the wheels F with the racks *a* if the levers were free to move. Being connected by the links G to the suspending mechanism, they are, however, prevented from moving outward unless the suspending-cable I is broken. In this case the wheels F will engage the racks *a* and be turned thereby. This will wind up the cables D′ and compress the springs. This will result in throwing greater strain upon the cables D′, and consequently hold the links outward with a greater force. As a consequence the elevator-cage will quickly be brought to a standstill, and that without any sudden shock, such as would occur if a positive grip were made upon the guides, as in the ordinary form of safety device. There will consequently be less liability of injury to any part of the construction or to the people who may be in the elevator at the time.

It is very evident that the racks *a* may be omitted and a plain wooden beam be substituted therefor, in which case the wheels

F would preferably be wheels resembling sprocket-wheels—that is, wheels having radial teeth which are sharpened sufficiently to engage the surface of the wood and bury themselves therein.

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

1. A safety device for elevators, comprising a wheel mounted upon the elevator-cage and adapted to be moved outward to engage an adjacent fixed body forming a part of or in the elevator-well, a spring connected to said wheel, to force it outward into engagement with said fixed body and adapted to be tightened by the consequent revolution of the wheel, and a restraining connection from the wheel to the cage-supporting mechanism, substantially as described.

2. A safety device for elevators, comprising a lever pivoted upon the elevator-cage and extending upward and outward, a wheel journaled upon the outer end of the arm, and adapted when the arm is swung outward to engage a fixed body upon the wall of the elevator-well, a spring connected to said wheel to swing it outward and to be tightened by the consequent revolution of the wheel, and a restraining connection from the wheel to the elevator-supporting mechanism, substantially as described.

3. A safety device for elevators, comprising a wheel mounted upon the elevator-cage and adapted to be moved outward to engage an adjacent fixed body forming a part of the elevator-well, a spring connected to said wheel, to force it outward or into engagement with said fixed body and adapted to be tightened by the consequent revolution of the wheel, pivoted links forming a part of the suspension connection, and a restraining connection from the central pivot of the links to the wheel-support and normally holding the wheel disengaged, substantially as described.

4. A safety device for elevators, comprising a wheel mounted upon the elevator-cage and adapted to be moved outward to engage an adjacent fixed body forming a part of the elevator-well, a spring connected to said wheel to force it outward or into engagement with said fixed body and adapted to be tightened by the consequent revolution of the wheel, pivoted links forming a part of the suspension connection, and a restraining connection consisting of a link in two parts connected by a turnbuckle and extending from the central pivot of the links to the wheel-support and normally holding the wheel disengaged, substantially as described.

5. A safety device for elevators, comprising a lever pivoted upon the elevator-cage and extending upward and outward, a wheel journaled upon the outer end of the lever and adapted when the lever is swung outward to engage a fixed body upon the wall of the elevator-well, a drum connected to said wheel, a cable attached to and adapted to be wound upon the drum when the wheel is revolved by engagement with said fixed body, a spring connected to said cable and acting against said rotation and to swing the wheel outward, and a restraining connection from the wheel to the cable-supporting mechanism, substantially as described.

6. A safety device for elevators, comprising a lever pivoted upon the elevator-cage and extending upward and outward, a wheel journaled upon the outer end of the lever and adapted when the lever is swung outward to engage a fixed body upon the wall of the elevator-well, a drum connected to said wheel, a cable attached to and adapted to be wound upon the drum when the wheel is revolved by engaging said fixed body, a spring connected to said cable and acting to swing the wheel outward, pivoted links forming a part of the suspension connection, and a restraining connection from the central pivot of the links to the arm and normally holding the arm up, substantially as described.

7. A safety device for elevators, comprising racks fixed at the sides of the elevator-well, levers pivoted upon the elevator-cage and extending upward and outward, gear-wheels journaled upon the outer ends of said levers and adapted when the levers are swung outward to engage the fixed racks, springs connected to said wheels to swing them outward to engage the racks and tightened by the consequent revolution of the wheels, and a restraining connection between the wheels and the elevator-supporting mechanism, substantially as described.

8. A safety device for elevators, comprising racks fixed at the sides of the elevator-well, levers pivoted upon the elevator-cage and extending upward and outward, gear-wheels journaled upon the outer ends of the levers and adapted when the levers are swung outward to engage the fixed racks, springs connected to said wheels to swing them outward to engage the racks and to be tightened by the consequent revolution of the wheels, pivoted links forming a part of the suspension connection, and restraining connections from the central pivots of the links to the levers and normally holding said levers up, substantially as described.

EUGENE X. GENOUD.

Witnesses:
H. L. REYNOLDS,
EVERARD B. MARSHALL.