

(No Model.)

W. P. GIBSON.

SAFETY DEVICE FOR ELEVATORS.

No. 412,329.

Patented Oct. 8, 1889.

Fig. 1.

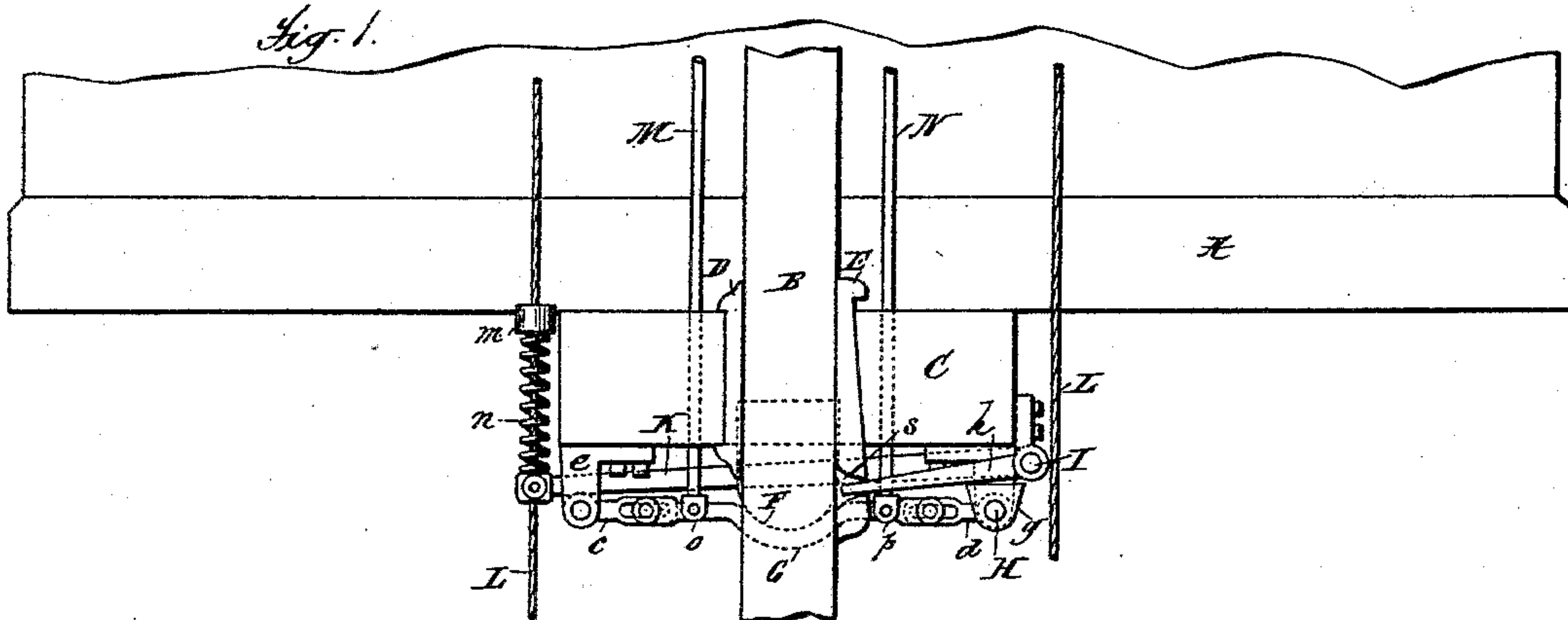
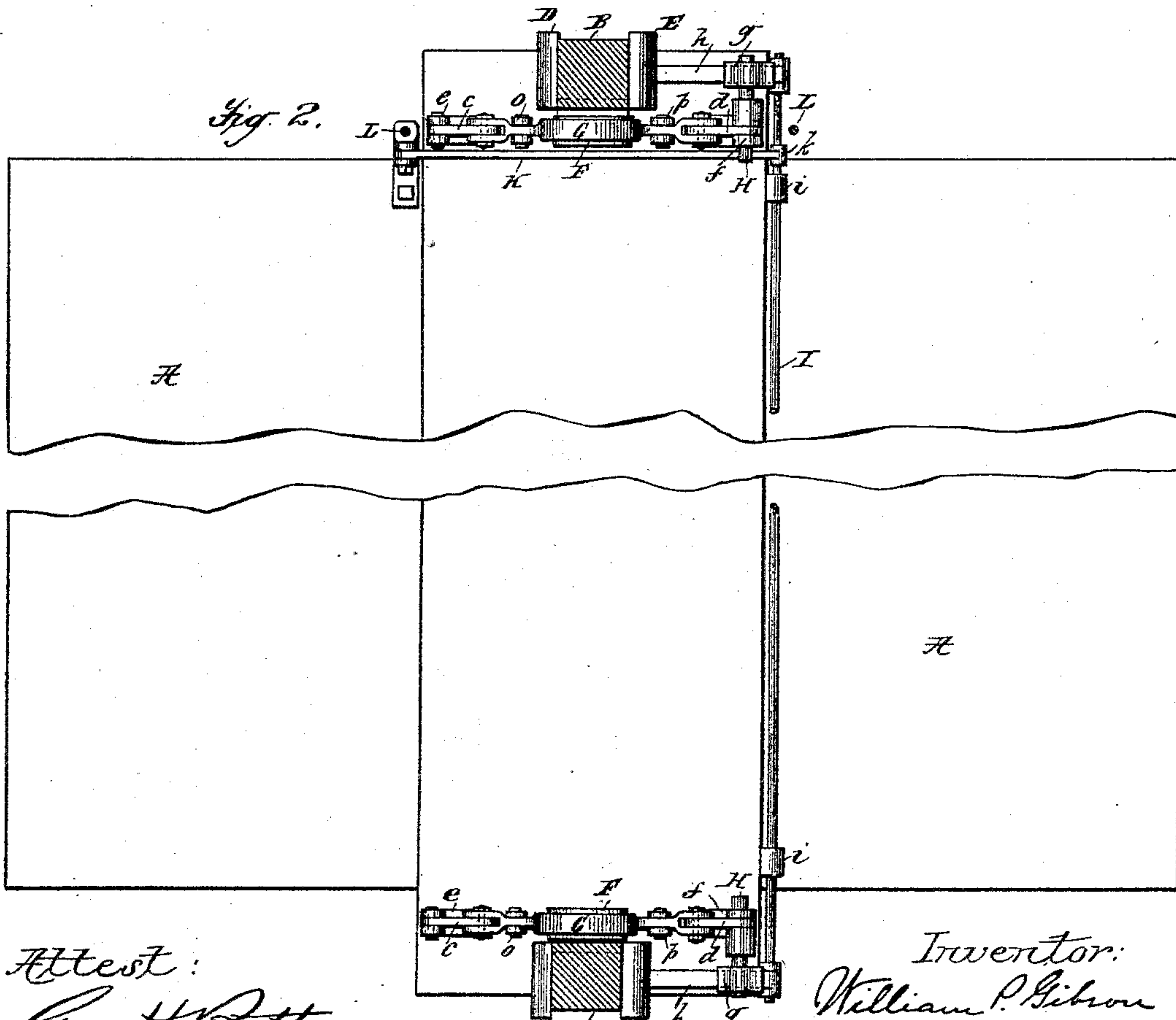


Fig. 2.



Attest:

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SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 412,329, dated October 8, 1889.

Application filed December 31, 1888. Serial No. 294,998. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. GIBSON, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Safety Mechanism for Elevators, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in connections for automatically operating the safety devices of an elevator.

It is the object of the present invention to provide connections for this purpose which shall be simple in construction and reliable in operation, combined with the hoisting-cables and speed-governor device of an elevator mechanism in such manner that the safety devices of the elevator may be set into operation to arrest the descent of the elevator-car by said hoisting-cables when any one or more of said cables become broken or slack, or by the speed-governor of the elevator mechanism when from any cause the speed of the elevator-car becomes unduly accelerated in its descent.

To this end the invention consists of certain peculiar arrangements and combinations of parts, which will now be explained in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the platform of an elevator-car provided with my invention. Fig. 2 is a plan view of the under side of the same.

In said drawings there is illustrated only so much of the mechanism of an ordinary elevator-car and its connections as is necessary for an understanding of the invention.

Referring to said drawings, it will be understood that A represents the elevator-platform, and B the guides by which its movements in the elevator-shaft are guided.

The platform A is provided upon its under side with a wide cross-beam C, extending across its width and having projecting ends in which are formed recesses for embracing loosely the guides B upon each side of the platform. Each recess is provided upon one side of the guide B with a metal wear-plate

D, and upon the opposite side with a wedge E, having an inclined outer face, the adjacent face of its recess being similarly inclined, as shown in Fig. 1.

The cross-beam C is provided at each end near each recess with a curved bearing F, against which rests a yoke-shaped arm G, the ends of which are pivotally connected to arms *c d*. The arms *c* are pivotally secured in bearings *e* upon the cross-beam C, and the arms *d* are made fast to rods H, also pivoted in bearings *f* upon said cross-beam, and each carrying a cam *g*, upon which rests a finger *h*, fast upon a rod I, turning in bearings *i*, secured to the side of the cross-beam C. The rod I has also fast upon it, at one end of the cross-beam C, a rock-arm K, one end of which is secured to the cable L of the governor apparatus of the elevator.

Interposed between the end of the arm K and a guide *m* in the car is a spring *n*.

The end of the finger *h* at each end of the cross-beam C enters an opening *s* in the lower end of the wedge E, and when raised and lowered forces said wedge upward and downward in its recess, as hereinafter described. The arm G upon each side of the cross-beam C has also secured to it at *o p*, respectively, the rods M N, two upon each side of the car, as shown, said rods passing upward along the sides of the car and being connected to the hoisting-cables above the car, in the manner shown in United States Letters Patent No. 216,013, to C. W. Baldwin, June 3, 1879; or, if preferred, the cables may separate at the top of the car and, passing downward upon the opposite sides of the car, have their ends secured at *o p*, as is common in this class of elevators.

The cable L may be connected to any suitable form of governor provided with connections for operating clamping or retarding devices, which, when the movement of the car becomes unduly accelerated, will stop or retard the further movement of said cable and cause it to operate the connections already described to raise the wedges E in their recesses and thus arrest the further movement of the car. A governor and connections suitable for the purpose is that described in United States Letters Patent No. 228,107, to C. R. Otis, May 25, 1880, to which Letters Pat-

ent reference will be made in the description of the operation of the mechanism heretofore described.

The operation of the mechanism described is as follows: When the elevator-car is traveling at normal speed and with its hoisting-cables intact and taut, the wedges E will rest loosely in their recesses and the safety appliance remain inoperative, the cable L moving with the car and communicating its movement to the governor. When, however, the descent of the elevator-car becomes for any reason accelerated beyond its proper speed, the governor, through suitable clamping devices, with which it is provided, (for example, those shown and described in the aforesaid Letters Patent,) will retard or stop the further movement of said cable and cause it to rock the arm K, and through the rod I raise the fingers *h* and wedges E and force said wedges tightly into their recesses. When the wedges E have been raised to this position, they will bind tightly between the beam C and the guides B and thereby arrest the further descent of the car. When the car has been thus arrested in its descent, the governor will cease its operation and upon the reverse movement of the car release its clamping devices from the cable L and permit said cable to be returned to its normal position by the spring *n*. The cable L in returning to its normal position will rock the arm K downward and through the rod I rock the fingers *h* downward and withdraw the wedges. The car will then be free to continue its descent. Should any one of the hoisting-cables become broken or slack, the other cable will draw upward upon and tilt the arm G, to which it is connected, and through its arm *d* rock the rod H and cause its cam *g* to rock the rod I and press the fingers *h* upward and force the wedges E into their recesses, and cause them to wedge tightly between the beam C and guides B, and thus arrest the descent of the car. Suppose, for example, one or both of the cables connected to the bars M should break or become slack. The strain then being increased upon the cables attached to the bars, they will draw upward upon their ends of the arms G, and through the arms *d* rock the rod or rods H, and cause the inner ends of its cam or cams *g* to press the fingers *h* upward

and force the wedges E into their recesses in the manner just described. Should either or both of the cables attached to the bars N break or become slack, the opposite end or ends of the arm or arms G will be raised and the outer end or ends of the cam or cams *g* pressed against the finger or fingers *h*, and the wedges E be forced upward into their recesses.

What I claim is—

1. The combination, with the fingers *h* and the wedges for stopping the car, of the rods H, having the cams *g* formed to operate said fingers when the rods H are rocked in either direction, the arms G, fulcrumed upon bearings beneath the car and connected upon opposite sides of said bearings to the respective hoisting-cables and pivotally connected at one end to arms *d*, extending from said rods H, substantially as described.

2. The combination, with the rod I, carrying fingers *h*, and the wedges for stopping the car, of the rods H, having the cams *g* formed to operate said fingers when the rods H are rocked in either direction, the arms G, fulcrumed upon bearings beneath the car and connected upon opposite sides of said bearings to the respective hoisting-cables and pivotally connected at one end to arms *d*, extending from said rods H, and the arm K, extending from the rod I and connected to the governor-cable L, substantially as described.

3. The combination, with the elevator-car and its guides B, of wedges E, the fingers *h*, entering openings in the wedges, so as to move said wedges in either direction, the rods H, having the cams *g* formed to operate said fingers when the rods are rocked in either direction, the arms G, fulcrumed against bearings beneath the car and connected upon opposite sides of said bearings to the respective hoisting-cables, and pivotally connected at one end to arms *d*, extending from said rods H, substantially as described.

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

WM. P. GIBSON.

Witnesses:

J. J. KENNEDY,
EDWARD WOOD.