

W. S. SMITH.

SAFETY CATCH FOR ELEVATORS.

No. 177,290.

Patented May 9, 1876.

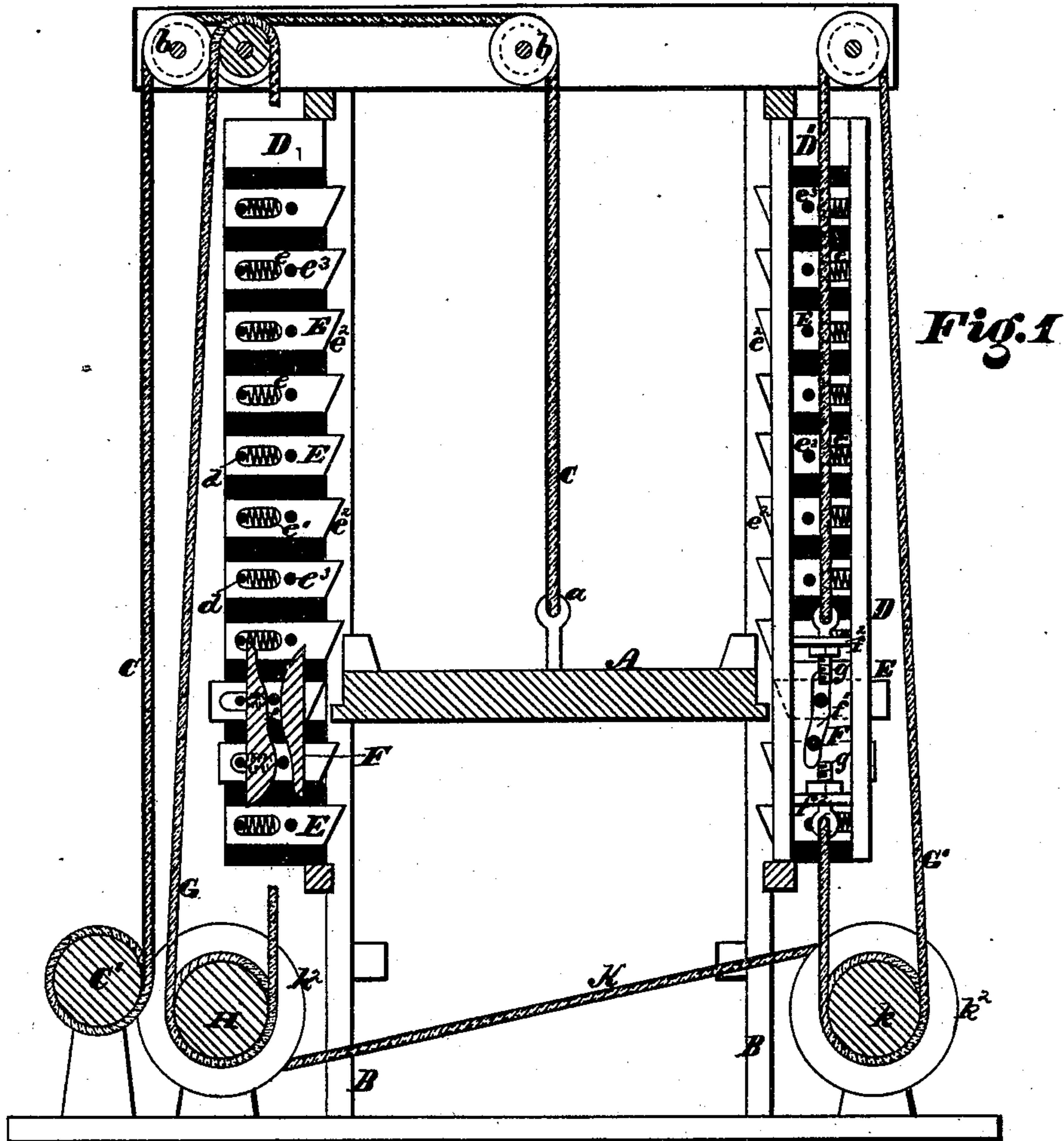


Fig. 1

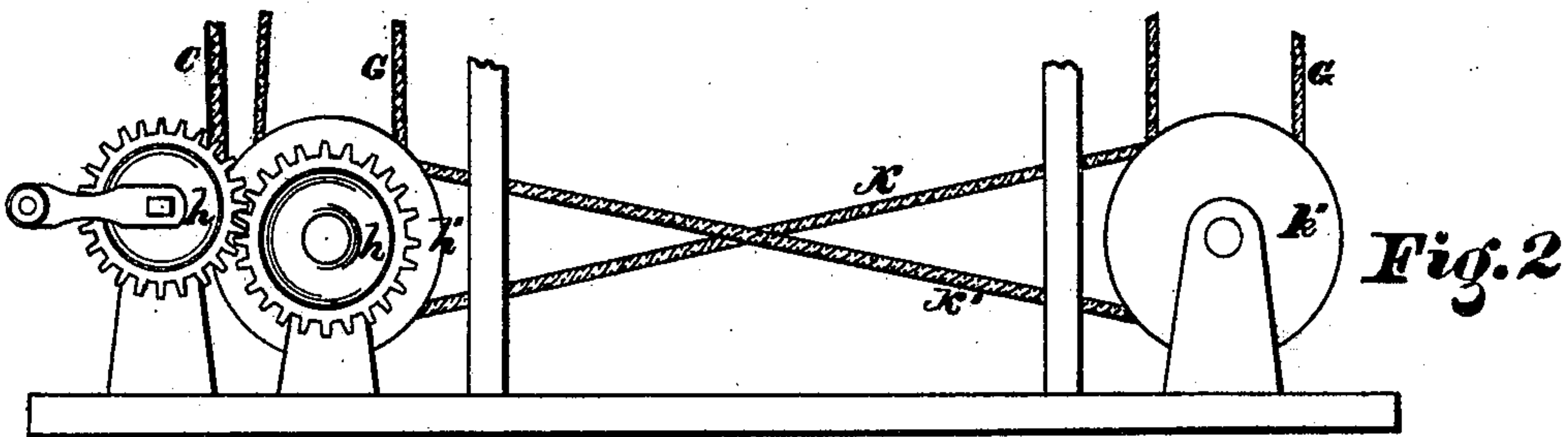


Fig. 2

Witnesses

Saml. J. Van Stavern.
Jos. B. Connolly

Inventor

Willis S. Smith,
Connolly Bros, Attorneys.

UNITED STATES PATENT OFFICE.

WILLIS S. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SAFETY-CATCHES FOR ELEVATORS.

Specification forming part of Letters Patent No. **177,290**, dated May 9, 1876; application filed April 20, 1876.

To all whom it may concern:

Be it known that I, WILLIS S. SMITH, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Safety-Catch for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Fig. 2 is a broken side elevation.

The object of my improvements is to prevent the falling of the cage or platform of an elevator in the event of the lifting-ropes breaking.

The nature of my invention consists in the peculiar construction and combination of parts, as hereinafter more fully described, having reference particularly to the provision of a series of sliding spring stops or bars, which project over or into the path of the platform or cage, and are moved out of the same by a slide, which ascends and descends with said cage or platform when the lifting-rope is in order and unbroken.

Referring to the accompanying drawing, A designates the cage or platform of an elevator, which moves vertically in uprights or frame-pieces B B. C is the lifting-rope, attached to the cage or platform at *a*, passing over guide-pulleys *b b* to a winding-drum, C', actuated from the crank of an engine or by other suitable means. D D represent vertical frame-pieces, in which are set sliding bars E. The bars E are slotted at *e*, lateral pins *d d* in the frame-pieces D' passing through said slots. *e*¹ are springs resting in the slots *e*, and bearing against the pins *d d*, so as to cause the beveled ends *e*² of the bars E to be projected into or over the path of the platform or cage A. F is a slide, moving in a groove, D', in the frame-pieces D, having on its under side, or side adjacent to the bars E, a curved groove, *f*, which, if desired, may be extended all the way through said slide, so as to form a slot, *f*¹. The projecting studs *e*³ on the bars E enter the groove *f* when the slide F is moved up or down, and are thus pushed back out of the way of the

cage or platform when regularly ascending or descending. Two slides, F, are intended to be employed, one on each of the frame-pieces D, and on opposite sides of the elevator. The slide F is moved coincidably with the cage or platform A by means of a rope, G, the two ends of which are connected to screws *g g*, which pass through ears *f*² *f*², said rope winding around a drum, H, of the same diameter as the drum C'. *h h* are gear-wheels connecting the two drums, so as to cause them to move at the same rate of speed. To move the slide F on the opposite side of the elevator I employ a drum, *k*, of same diameter as drums C' and H, over which is wound and passes a cord or rope, G', having its ends attached to screws which pass through ears in the slide, the same as rope G. To turn the drum *k* I place on its shaft two fast pulleys or sheaves, *k*¹ *k*², connecting the same with similar sheaves or pulleys, *h*¹ *h*², on the shaft *h* of the drum H. K K' are cords or ropes connecting the same, and so arranged that while each said cord is winding at one end it will be unwinding at the other, and also so that while one cord is winding on one shaft the other will be unwinding from the same shaft, and vice versa.

The operation is substantially as follows: On turning the drum C', the rope C is wound on or unwound therefrom, causing the cage or platform A to ascend or descend. Simultaneously therewith the drums H and *k* are turned by the means described, causing the ropes G and G' to move the slides F, withdrawing the bars E out of the path of the elevator cage or platform. As soon as the slides F clear the studs *e*², the springs *e*¹ cause the bars E to assume their normal projecting position. The screws *g g* serve to adjust the positions of the slides F, and also tighten the ropes G G' when they become slack. Should the lifting-rope C break, the cage or platform A will be arrested and prevented from falling by the bars E.

What I claim as my invention is—

1. The sliding bars E, provided with springs *e*¹, for projecting them into the path of the elevator.
2. In combination with sliding bars E, the slide F, operating to withdraw said bars, substantially as shown and set forth.

3. The combination of cage or platform A, moved by lifting-rope C, winding on drum C', and slide F, moving coincidently by means of rope or cord, G, winding on a separate drum, I, and operating upon sliding bars E, substantially as shown and described.

4. In combination with the slide F and cord I, the adjusting and tightening screws g g, substantially as shown and described.

5. The combination, with slides F F and

cords or ropes G G', of drums H h, pulleys h¹ h² k¹ k², and cords or ropes K K', substantially as shown and set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of April, 1876.

WILLIS S. SMITH.

Witnesses:

THOS. A. CONNOLLY,

CHAS. F. VAN HORN.