

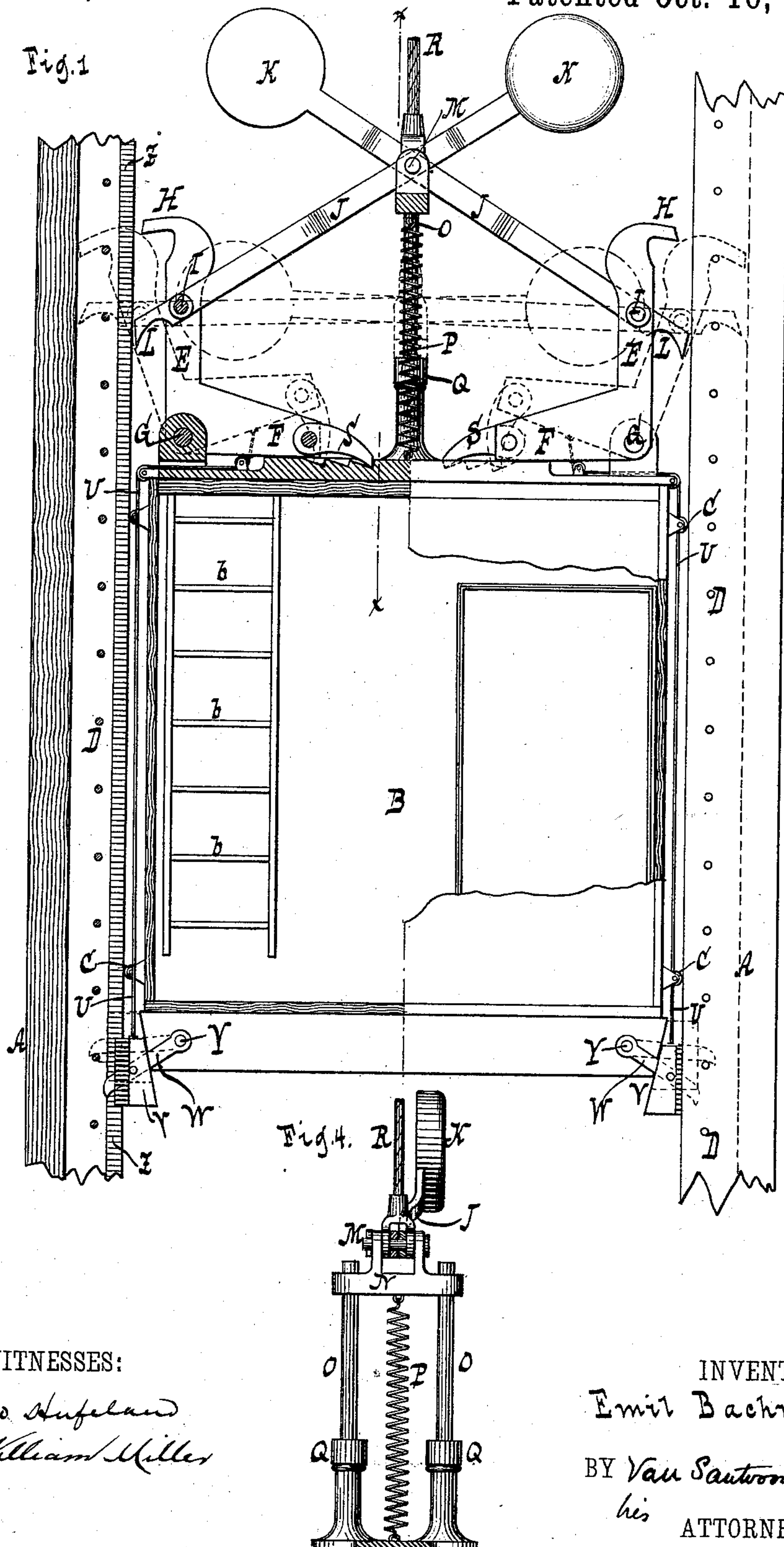
(No Model.)

2 Sheets—Sheet 1.

E. BACHMANN.  
ELEVATOR.

No. 286,760.

Patented Oct. 16, 1883.



WITNESSES:

Otto Hufeland  
William Miller

INVENTOR

Emil Bachmann

BY *Van Santvoord & Hauff*  
his ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

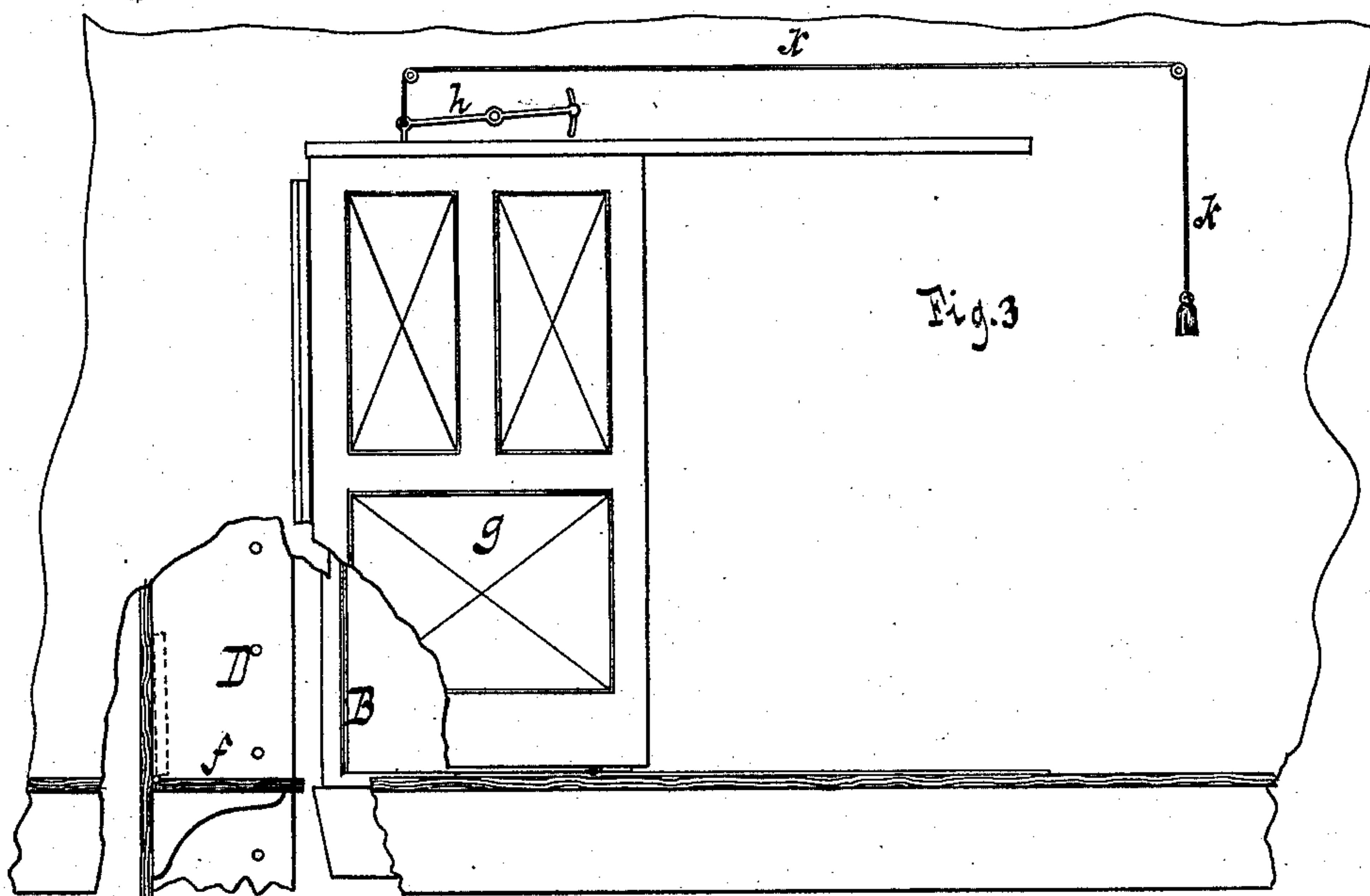
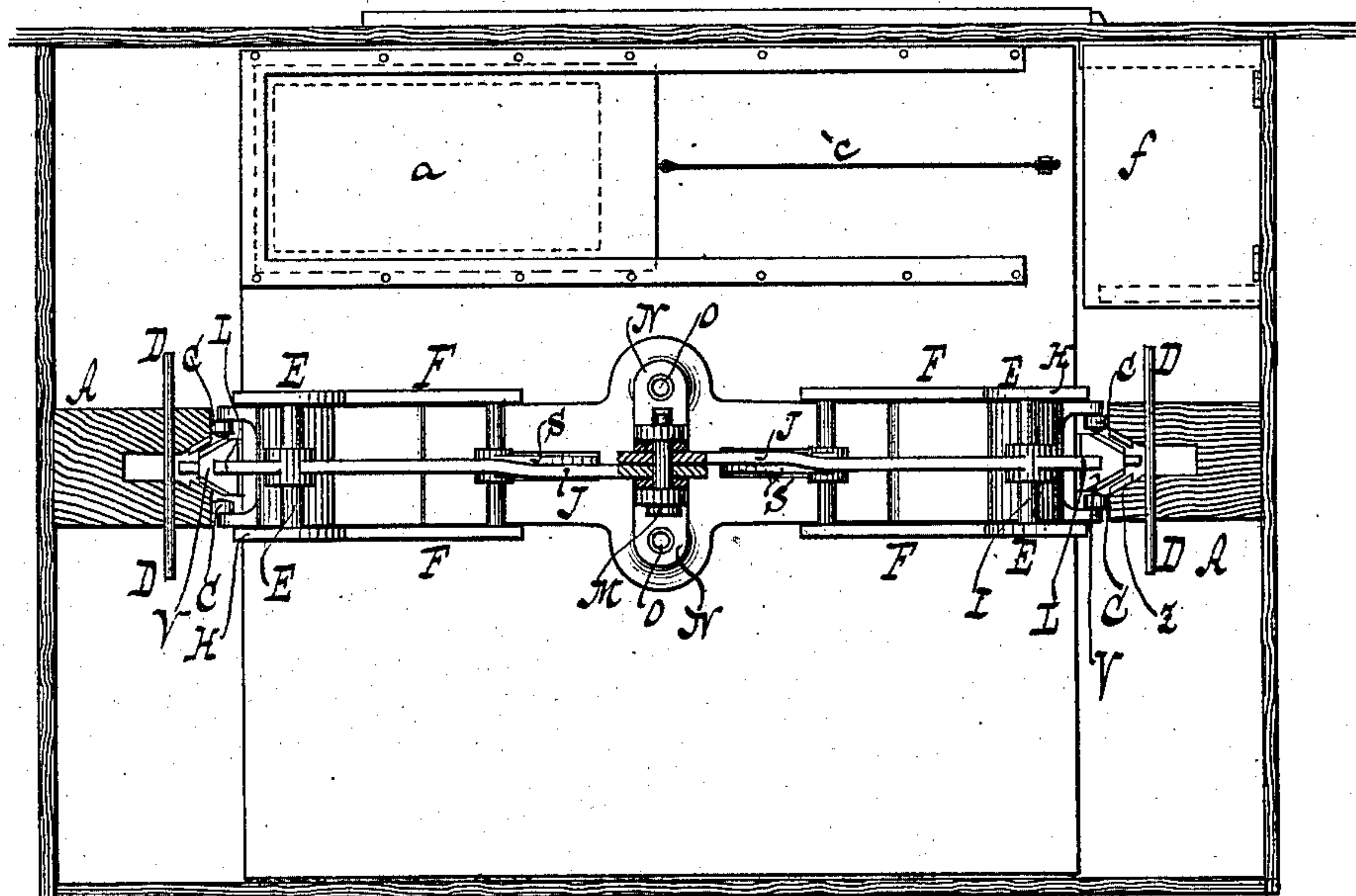
E. BACHMANN.

ELEVATOR.

No. 286,760.

Patented Oct. 16, 1883.

Fig. 2.



WITNESSES:

*Otto Hufeland*  
*William Miller*

INVENTOR

*Emil Bachmann*

BY *Van Santen & Haupp*  
his  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

EMIL BACHMANN, OF NEW YORK, N. Y.

## ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 286,760, dated October 16, 1883.

Application filed September 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL BACHMANN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Elevators, of which the following is a specification.

This invention relates to improvements in elevators; and it has for its object to provide novel and efficient mechanism for stopping the descent and supporting the elevator-carriage should the elevator-suspending cable break, and to provide means for permitting escape from the carriage.

The invention has other objects, all of which will be hereinafter set forth.

The objects of my invention I accomplish by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a side view, partly in section, of an elevator-shaft and a car. Fig. 2 represents a plan view thereof, partly in section. Fig. 3 is a view of a door leading into the elevator-shaft, with an attachment for opening the same from the exterior. Fig. 4 is a section in the plane  $x x$ , Fig. 1.

Similar letters indicate corresponding parts.

A are guide-posts which run the entire length of the elevator-shaft, and between which the elevator car or cage B is guided and held steady in its passage by guide-rollers C C. The guide-posts A may be made of wood, iron, steel, or any other suitable material. I prefer to make the body of the post of wood, and to face the same with metal plates, as this furnishes a light and cheap method of construction, which at the same time offers durability. The guide-posts A are grooved along the center, as seen best in Fig. 2, and the grooves, as also the sides of the guide-posts, are provided with catches, which are readily formed by forcing rods or bars D, of metal, wood, or other suitable material, through the posts A at suitable intervals. Of course teeth or racks may be made to take the place of the bars D; but I prefer bars, as they allow the posts A to be utilized, in case of emergency, as ladders, the rods D serving as rounds.

To the elevator-car B are journaled or pivoted arms E F by means of pivots G. These arms are provided with hooks H, which are adapted to engage with the catches D on the

guide-posts A, as hereinafter described. These arms E F, in the example shown in the drawings, are shaped like bell-crank levers, and to the arms E are attached pivots I, about which turn the weighted arms or levers J. These arms J are provided with hooks L, adapted to engage with the catches on the guide-posts A. The arms or levers J are jointed by a pivot, M, and are held up in the position shown in full lines by the rope or chain R, to which the elevator-car is suspended. Upon said rope or chain R becoming broken or severed, the weights K K and spring P cause the parts of the levers J which are jointed by the pivot M to descend. In their descent the levers J are guided by the cross-head N, passing over the guide-rods O O, which rise from the roof of the elevator. The rods O O are provided with springs or cushions Q Q, of rubber or soft material, to break the fall of the weights K and levers J. The action of the weights K and spring P causes the levers J and arms E F to assume the positions indicated by dotted lines in Fig. 1, whereby the hooks H L are forced outward and caused to engage with the catches D D on the guide-posts A.

On the top or roof of the elevator are teeth, on which rest the fingers S, Fig. 1, hinged to the arms F, and when the arms F swing upward to the position indicated in dotted lines the fingers S prevent the same from coming back to their original position, thus keeping the hooks H L in engagement with the catches D on the guide-posts A.

To increase the efficiency of the device, I may attach springs by one end to the weights K and by the other end to the roof of the car, which springs will assist the spring P and act in an analogous manner. This arrangement being obvious in its attachment and manner of working, I have not shown the same in the drawings.

To the arms F are also attached ropes or chains U, which are at their lower ends fastened to wedges V. These wedges V are pivoted or attached to hooked arms W, swinging on pivots Y on the elevator-car. When the arms F swing upward, the ropes U cause the hooked arms W to swing upward, bringing their hooked ends into engagement with the catches D on the posts A, while at the same time the toothed or file-faced edges of the wedges



V are brought into contact with the teeth Z along the sides of the grooves in the posts A. The elevator-car is thus, by the joint action of the wedges V and of the hooks W H L, prevented from falling in case the supporting chain or rope R should break, as said several supporting devices serve to hold the car securely at any point along the guide-posts A. Of course I may cause any of the hooks H, L, and W to catch either over the outer catches, D, on the guide-posts A, or over the inner ones. In the example shown in the drawings the hooks L and W catch over the inner catches, D, or over the catches inside the grooves in the posts A, while the hooks H catch over the outer catches or over the ends of the rods D, projecting from the sides of the posts A. I may also dispense entirely with the central catches, and utilize only the outer ends of the rods D as catches, without departing from the spirit of my invention, one object of which is to enable the guide-posts A to be used as ladders.

The arms supporting the hooks H L W, when not supporting the car B on the catches D, may be made to pass only a slight distance over the edges of the posts A, or into the central grooves therein, so as to serve as guides for steadying the elevator-car without passing sufficiently far from the car to engage with the catches D. The car B is thus held steady in position, and the guiding-rollers C C are prevented from moving laterally and away from the guide-posts A.

The elevator-car B is provided with an opening in its roof, which may serve as a ventilator, and which in the drawings is shown closed by a sliding door, *a*, which may be drawn back by a rope, C', reaching to the interior of the car. Within the car is also arranged a ladder, which in the drawings is shown as being formed by ledges *b*, fastened to a side of the car. I prefer to make these ledges *b* quite broad, so that they be utilized as shelves on which articles may be placed. If the car should be stopped at any point along the shaft by the breaking of the rope R, or any other cause, exit may be had from the interior of the car to its roof through the opening closed by the sliding door *a*, and from thence, by utilizing the guide-posts A with their rods D as a ladder, an ascent or descent may be made to any floor. At the level of each floor I arrange a platform, *f*, Figs. 2 and 3, which, in the example shown, consists of a plank or board hinged to the side of the shaft, and which may be made to rest against the side of the shaft when not in use, as shown in dotted lines in Fig. 3, or swung down into a horizontal position, as shown in Fig. 2, so as to enable a person to rest thereon. As shown in the drawings, the plank *f* reaches only a short distance out from the side of the elevator-shaft; but it is obvious the same may be made long enough to reach across the entire shaft and rest with its free edge upon a projection or ledge fastened to the side of the shaft opposite to that

to which said platform *f* is hinged, thus allowing a passage across the elevator-shaft. The platform *f* is near enough to a guide-post, A, to enable a person to step from such platform onto the rods D, or vice versa. By these means access may be had from the elevator-shaft to any floor of a building through a door, *g*, no matter where the elevator-car B may be.

Fig. 3 shows the exterior of a door, *g*, leading from a floor of a building to the elevator-shaft. The latch *h*, holding this door closed, may be operated from outside the elevator-shaft by a cord, *k*, or other suitable means, so that the door *g* may be opened from outside the elevator-shaft, and a descent or ascent made along the guide-posts A. This arrangement is serviceable as a fire-escape.

The latch *h* may be operated automatically by the elevator-car in the manner described in my Patent No. 284,352, of September 4, 1883; or any other suitable appliance may be provided for allowing the door *g* to be opened either from the outside of the elevator-shaft or from the inside thereof, the chief object of this arrangement being to enable the door *g* to be opened from outside the elevator-shaft in case of need.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an elevator, the combination, with up-rights A, provided with lateral catches or teeth, of swinging arms pivoted to the elevator-carriage, and having hooks at their upper ends, and mechanism for swinging said arms and throwing their hooked upper ends into engagement with the lateral catches or teeth by the breakage of the elevator-suspending cable, substantially as described.

2. In an elevator, the combination, with up-rights A, provided with lateral catches or teeth, of bell-crank levers E F, pivoted to the elevator-carriage, and provided with hooked upper ends, and mechanism connected with the bell-crank levers for swinging them on their pivots and throwing their hooked ends into engagement with the lateral catches or teeth by the breakage of the elevator-suspending cable, substantially as described.

3. In an elevator, the combination, with up-rights A, provided with lateral catches or teeth, of swinging arms pivoted to the elevator-carriage, and having hooks at their upper ends, levers J, pivoted to the swinging arms and pivoted together by the pivot M, the suspending-cable, and means for operating the levers and swinging the arms to throw their hooked ends into engagement with the lateral catches or teeth by the breakage of the suspending-cable, substantially as described.

4. In an elevator, the combination, with up-rights A, provided with lateral catches or teeth, of swinging arms pivoted to the elevator-carriage and having hooked upper ends, levers J, having hooks L at their outer ends and pivoted to the swinging arms, a pivot, M, connecting the levers, the suspending-cable R, and means for operating the levers for throw-



ing the hooks of both the arms and the levers into engagement with the lateral catches or teeth by the breakage of the suspending-cable, substantially as described.

5 5. In an elevator, the combination, with up-  
rights or guide-posts A, provided with lateral  
catches or teeth and with central catches or  
teeth, of supporting devices, mechanism for  
throwing said supporting devices into gear  
10 with said catches, and detent mechanism S, for  
holding said supporting devices in gear with  
said catches, substantially as set forth.

15 6. In an elevator, the combination, with up-  
rights or guide-posts A, provided with lateral  
and central catches, and with a rack, Z, of sup-  
porting-arms E J W and supporting wedges  
or teeth V, and mechanism for throwing said  
arms and wedges or teeth into gear with said  
catches and with said racks, substantially as  
20 set forth.

7. In an elevator, the combination, with up-  
rights or guide-posts A, provided with lateral  
and central catches, of supporting devices and  
weights K and spring P, (one or both,) for  
25 throwing said supporting devices into gear  
with said catches, substantially as set forth.

8. In an elevator, the combination, with up-  
rights or guide-posts A, provided with lateral  
and central catches, of supporting devices,  
weights K and spring P, (one or both,) for 30  
throwing said supporting devices into gear  
with said catches, and detent mechanism S, for  
holding said supporting devices in gear with  
said catches, substantially as set forth.

9. An elevator-car provided with a ladder 35  
or steps, *b b*, and having its roof provided with  
a door, *a*, substantially as and for the purpose  
set forth.

10. An elevator-shaft provided with a guide  
post or posts, A, having lateral catches, and 40  
with a platform or rest, *f*, substantially as and  
for the purpose set forth.

In testimony whereof I have hereunto set  
my hand and seal in the presence of two sub-  
scribing witnesses.

EMIL BACHMANN. [L. s.]

Witnesses:

J. HERMAN WAHLERS,  
W. C. HAUFF.