

No. 742,185.

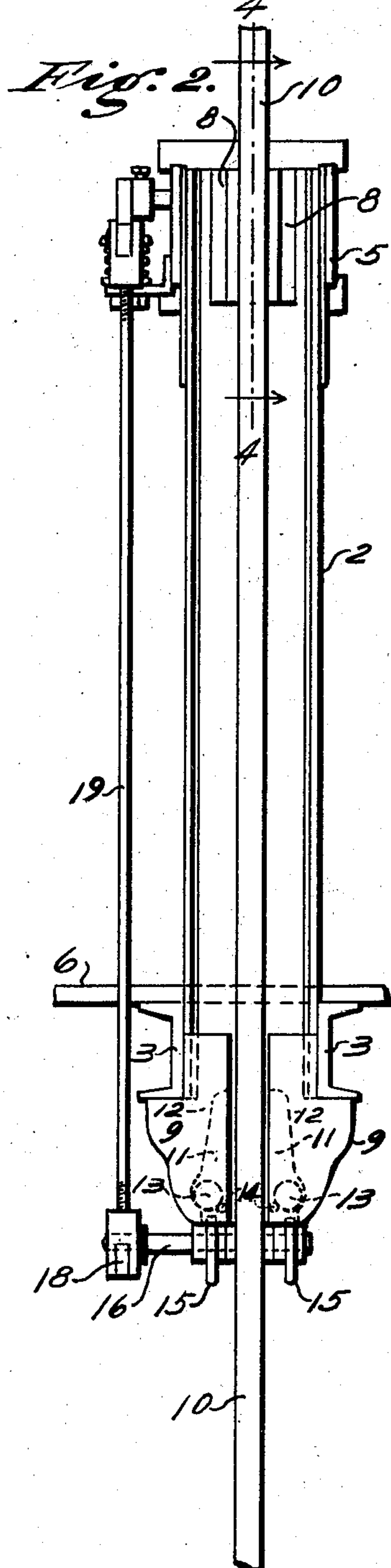
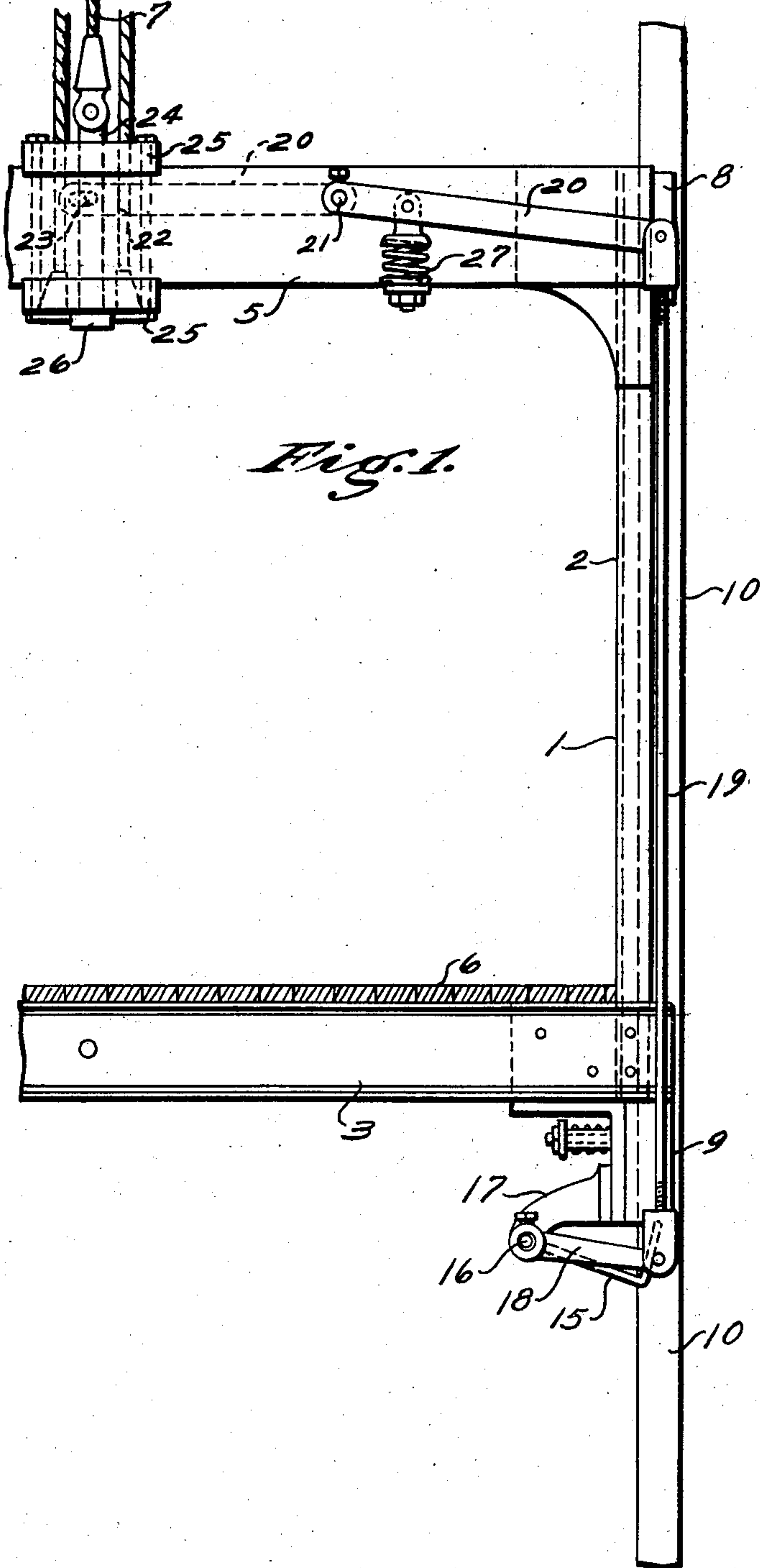
PATENTED OCT. 27, 1903.

J. GAVELEK.
ELEVATOR BRAKE.

APPLICATION FILED MAR. 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Rudow Rummel
Blanche Michael.

Inventor,
Julius Gavelek
by Rummel & Rummel,
his Attorneys.

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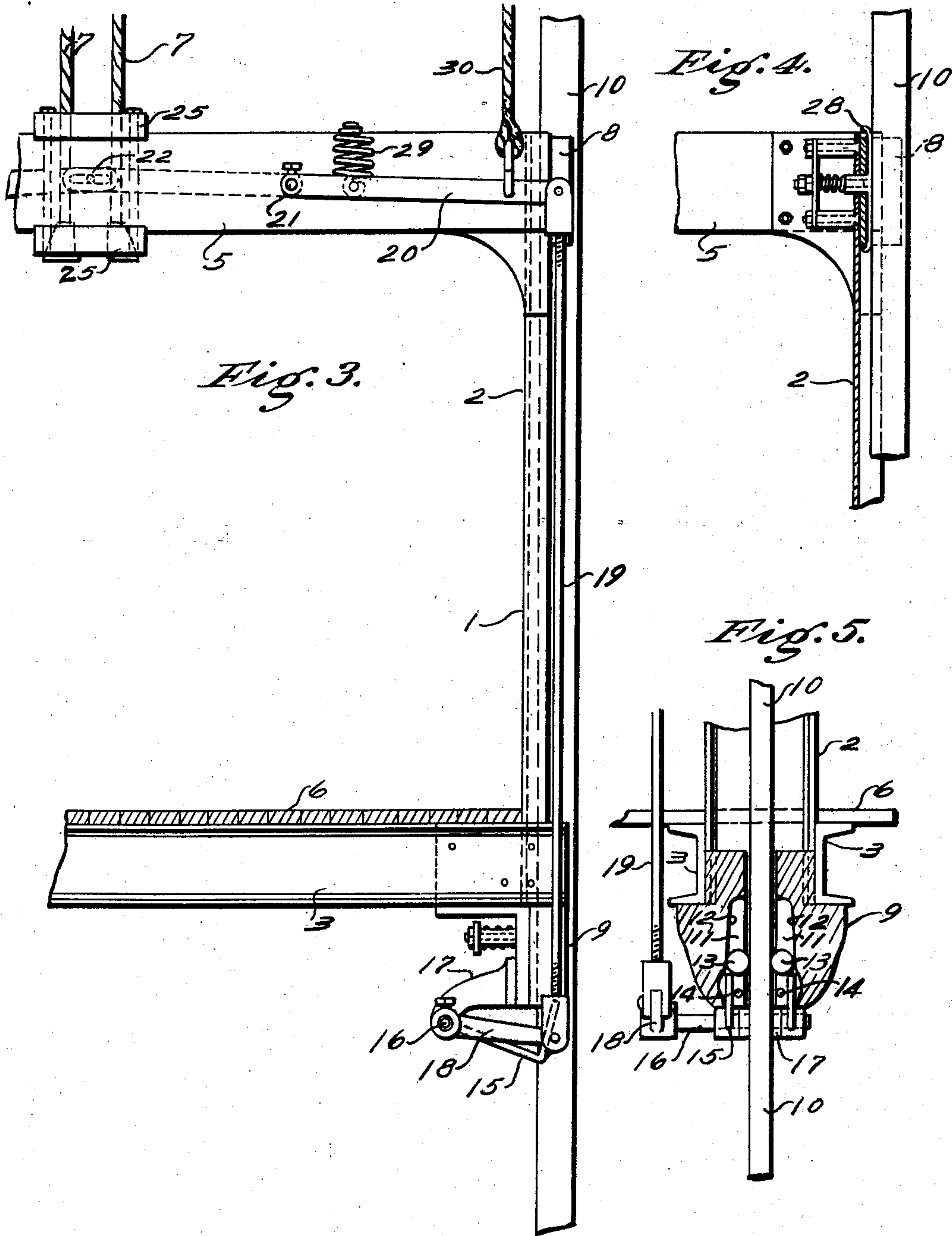
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UNITED STATES PATENT OFFICE.

JULIUS GAVELEK, OF CHICAGO, ILLINOIS.

ELEVATOR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 742,185, dated October 27, 1903.

Application filed March 10, 1903. Serial No. 147,071. (No model.)

To all whom it may concern:

Be it known that I, JULIUS GAVELEK, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Elevator-Brakes, of which the following is a specification.

My invention relates to emergency-brakes for elevators. Its main objects are to provide a simple and reliable brake for stopping the fall or too-rapid descent of an elevator-car and to provide an improved form of clutch adapted to grip the elevator guide-rails and instantly stop the elevator-car when the hoisting-cables break or when the tension on such cables is suddenly released. I accomplish these objects by the device shown in the accompanying drawings, in which—

Figure 1 is an elevation, partly broken away, of an elevator having attached thereto an emergency-brake constructed according to my invention. Fig. 2 is a side elevation of the same, also partly broken away. Fig. 3 is a modification of the device shown in Fig. 1 adapted for freight-elevators which are intended to carry great loads and in which it may be desirable to operate the brake by means independent of the hoisting-cables. Fig. 4 is a vertical section on the line 4-4 of Fig. 2. Fig. 5 is a vertical section of the guide-shoe at one side near the bottom of the elevator-car, showing the brake in its gripping position.

In the drawings only one side of the elevator is shown, it being understood that the other side of the elevator is provided with exactly similar mechanism.

In the construction shown the car of the elevator is represented by the supporting-frame 1, which is constructed of structural steel comprising vertical side bars 2, connected together by the beams 3 and 5. The floor 6 of the car is supported by the beams 3 of the frame 1, and the elevator-car is suspended by means of a cable 7, which is secured to the middle part of the beam 5. Each of the side bars 2 is provided with a pair of guide-shoes 8 and 9, located, respectively, at the upper and lower ends of same and adapted to slidably engage the guide-rail

10, upon which the elevator runs. Each of the guide-shoes 9 is provided with a pair of cavities 11, located on opposite sides of the guide-rail 10 and open toward said guide-rail. The cavities 11 are constructed near their upper ends and have inclined side walls 12, as shown in Figs. 2 and 5. Each of the cavities 11 has seated therein a roller 13. The rollers 13 normally rest on the seats formed by the pins 14 and the adjacent part of the walls 12. A finger 15 is disposed below each of the rollers 13 and is secured to a shaft 16, journaled in a bracket 17 on the shoe 9. A lever 18 is also rigidly connected to the shaft 16 and is pivotally connected to a vertically-disposed rod 19, extending upwardly along the side bar 2 of the elevator-frame. The upper end of the rod 19 is pivotally connected to a lever 20, which is fulcrumed at 21 to the beam 5 and has its other end 22 connected to a pin 23 on a hanger 24, to which the cable 7 is attached. The hanger 24 is vertically slidable within the blocks 25, by means of which said hanger is connected with the beam 5. The hanger 24 is provided at its lower end with a head 26, which is normally in engagement with the beam 5, as is shown in Fig. 1. A spring 27, bearing between the lever 20 and a lug on the beam 5, normally urges the fingers 15 upwardly, so as to tend to raise the rollers 13 from their seats, as shown in Fig. 5. The tension on the cable 7 due to the weight of the elevator-car holds the hanger 24 in the position shown in Fig. 1 and also holds the fingers 15 in their lowest position. Each of the shoes 8 and 9 is provided with a spring-pressed plate 28, which bears against the guide-rail 10. These plates serve to center the elevator-car, so that same runs freely on its guides.

In a freight-elevator, where the load is usually carried by a plurality of cables, it may be desirable to operate the brake by mechanism independent of the hoisting-cables, and for this purpose my brake is modified as shown in Fig. 3. In this form the levers 20 are fulcrumed at 21, as before, and have their ends 22 connected together, as shown. The spring 29 urges the lever 20 into suitable position to normally hold the fingers 15 in their lowest positions. The raising of the fingers 15 in this construction is accomplished

by means of a cord 30, which passes over a governor. (Not shown in the drawings.) The governor is so arranged that the elevator-car may run up to its normal speed without affecting the tension on the cord 30, but is adapted to increase its resistance and cause a sufficient pull on the cord 30 to raise the fingers 15 and release the rollers 13 from their seats when the descent of the elevator-car reaches a speed which is greater than said normal speed.

The operation of the device shown is as follows: In the form shown in Fig. 1 the weight of the elevator-car hanging from the cable 7 normally holds the hanger 24 in the position shown, and thereby holds the fingers 15 out of engagement with the rollers 13. If the tension on the cable 7 is now reduced below the pressure of the spring 27, as would be the case if the cable 7 should break or be suddenly released, the spring 27 will raise the lever 20 and through its connections raise the fingers 15 and force the rollers 13 upwardly a sufficient distance to engage both the inclined walls 12 and the adjacent faces of the guide-rail 10. The friction due to the descent of the elevator-car will tightly jam the rollers 13 toward the upper part of the cavities 11, causing same to press upon the guide-rail 10 and stop the descent of said elevator-car. With wooden guide-rails large rollers are preferred; but when the guide-rails are of steel small rollers should be used. In the form shown in Fig. 3 the rollers 13 will be similarly released and will stop the descent of the elevator-car when the tension upon the cord 30 becomes greater than that of the spring 29.

It will be seen that numerous details of the construction shown may be altered without departing from the spirit of my invention. I therefore do not confine myself to such de-

tails except as hereinafter limited in the claims.

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

1. In an elevator, the combination of a vertically-disposed guide-rail, a shoe longitudinally slidable along said rail and having therein cavities at opposite sides of, and open toward, said guide-rail, the inner wall of each cavity being inclined upwardly toward said guide-rail; a roller within each of said cavities normally held out of engagement with said guide-rail; a shaft having rigid thereon a pair of fingers each extending under one of said cavities and adapted to simultaneously raise said roller when the shaft is rocked, and means for rocking said shaft, substantially as described.

2. In an elevator, the combination of a vertically-disposed guide-rail, a shoe longitudinally slidable along said rail and having therein cavities at opposite sides of, and open toward, said guide-rail, the inner wall of each cavity being inclined upwardly toward said guide-rail; a roller within each of said cavities normally held out of engagement with said guide-rail; a shaft having rigid thereon a pair of fingers each extending under one of said cavities and adapted to simultaneously raise said rollers when the shaft is rocked; a governor-cord secured to said shaft independent of the hoisting-cables of the car, and adapted to rock said shaft so as to raise said rollers when the normal speed of the car is exceeded, substantially as described.

Signed at Chicago this 28th day of February, 1903.

JULIUS GAVELEK.

Witnesses:

WM. R. RUMMLER,
RUDOW RUMMLER.