

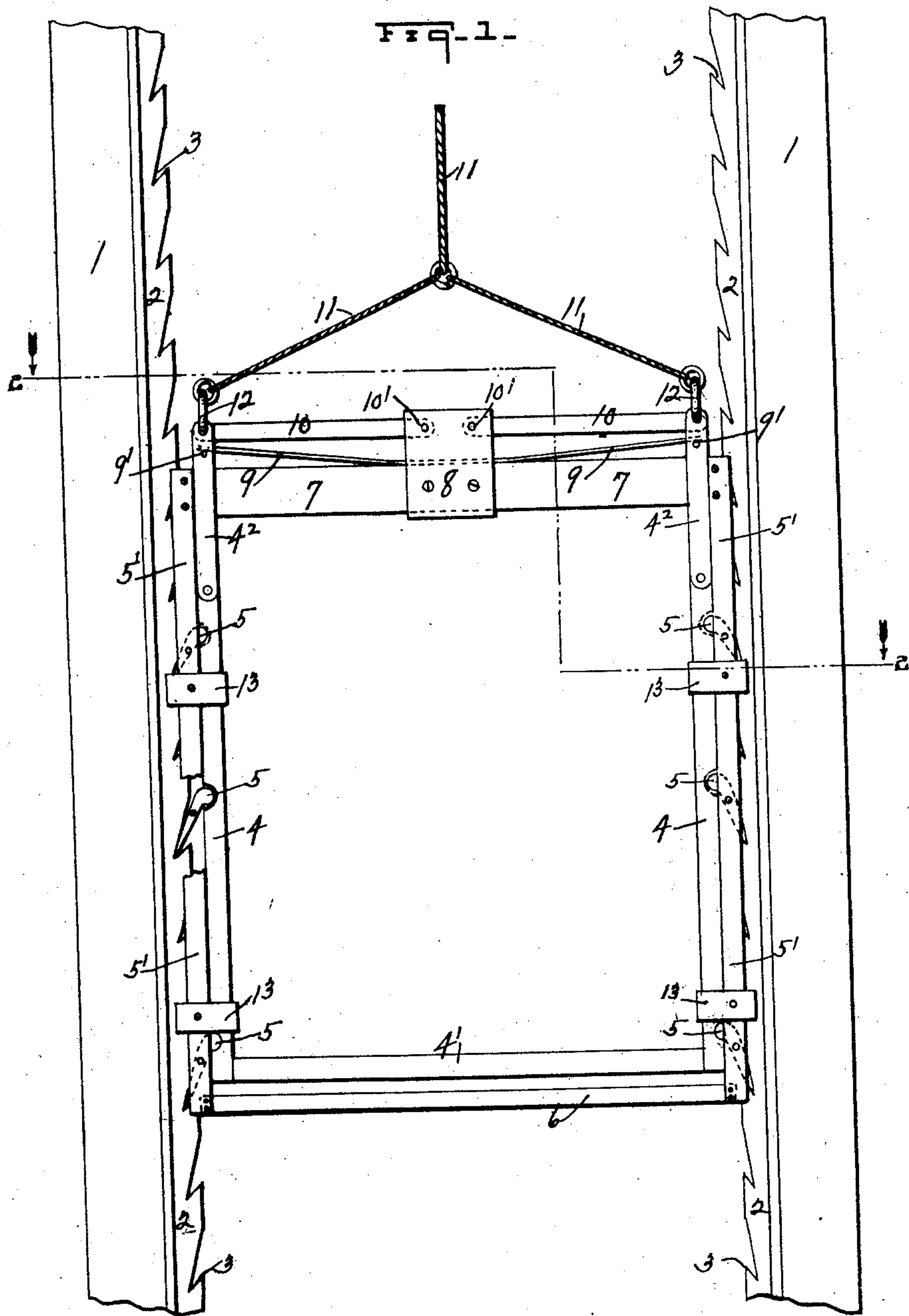
No. 826,634.

PATENTED JULY 24, 1906.

F. A. WEIGEL.
SAFETY DEVICE FOR ELEVATORS.

APPLICATION FILED APR. 28, 1904.

2 SHEETS—SHEET 1.



Witnesses:

J. D. Hoffman,
H. W. Stevenson

Inventor

Frederick A. Weigel
by J. H. Stevenson

Attorney

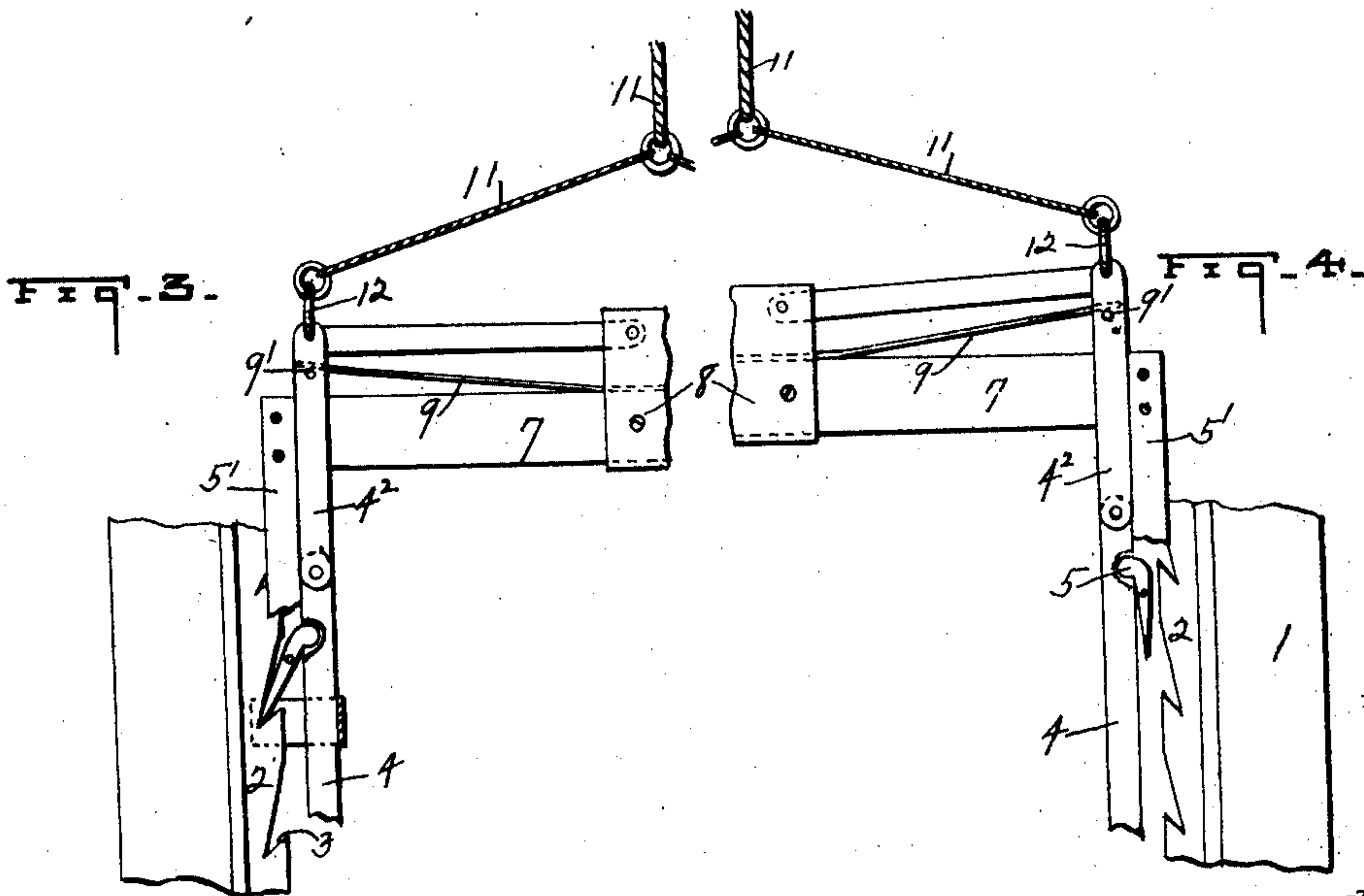
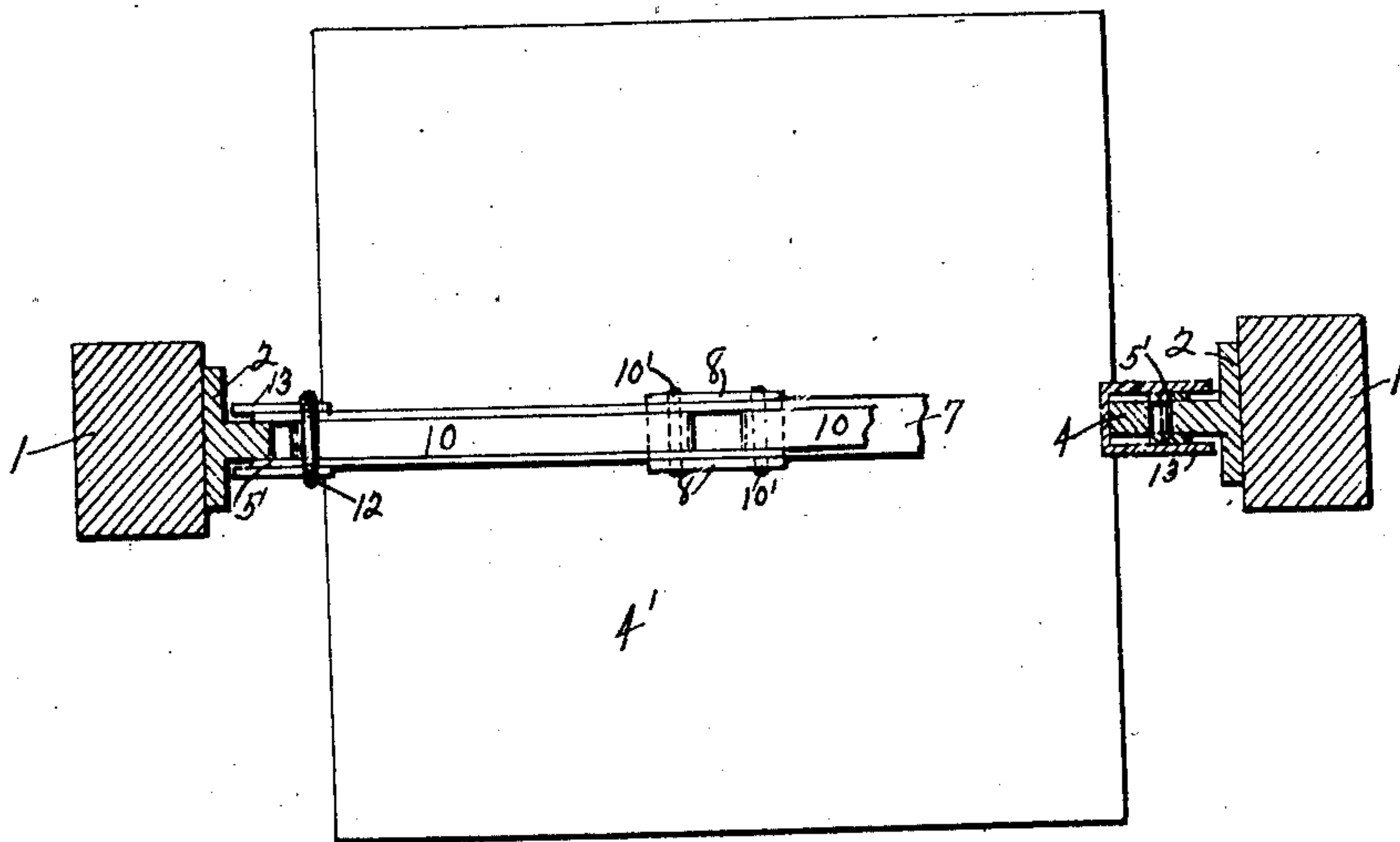
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2 SHEETS—SHEET 2.

FIG. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK A. WEIGEL, OF FLOREFFE, PENNSYLVANIA.

SAFETY DEVICE FOR ELEVATORS.

No. 826,634.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed April 28, 1904. Serial No. 205,316.

To all whom it may concern:

Be it known that I, FREDERICK A. WEIGEL, a citizen of the United States of America, residing at Floreffe, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Elevators; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

The object of my invention is the production of a passenger and freight elevator for use in buildings wherein persons and freight are carried up and down from floor to floor, and particularly in providing means for automatically checking the downward flight of the car in case of the breaking of the carrying-rope.

In the accompanying drawings, in two sheets, I have illustrated my invention by several views, in which—

Figure 1 is a front view of my car locked in position in the shaft. Fig. 2, Sheet 2, is a top and part sectional view of the car and ways, taken on line 2 2 of Fig. 1. Fig. 3 is a view of the top portion of the elevator-cage, the latter being shown in locked engagement with the frame. Fig. 4 is a view of the top portion of the elevator-cage wherein the inner cage is in its elevated position relative to the outer cage.

Like numerals of reference designate like parts throughout the several views, in which—

The numeral 1 indicates the side frame of the elevator-way.

2 is a rack set vertically in the frame 1, on both sides thereof, and having a series of notches or teeth 3 3.

4 4 indicate the side walls of the frame of the inner cage, and 4' the bottom or floor of the inner cage. Connected to the upper ends of the side pieces 4 4 at either side are the supporting members 4² 4².

Pivotaly mounted in the guideways 5' 5', forming the side walls of the outer cage, are the pawls 5, having enlarged curved heads on their rear ends and being reduced at their forward ends for purposes of engagement with the teeth 3 3. The side walls 4 4 of the inner cage are provided with cut-outs or recesses to receive the heads of the pawls, which extend longitudinally into the walls to

a sufficient distance to permit of the free turning of the pawls on their pivots, so that no lateral force is exerted against these side members or walls during the movement of the pawls. The heads of the pawls in the normal sustained position of the inner cage are in contact with the lower portion of the cut-outs of the walls of the cage, and the outer end portions of the pawls are held flush with the faces of the sides of the outer frame, so as to offer no projecting surfaces to engage with the teeth 3 3 on the racks 2. When this inner cage drops, as will be further pointed out in the following description, these pawls are turned on their pivots so that the outer ends engage with the teeth 3 3, the heads of these pawls being engaged by the upper portion of the cut-outs of the walls of the inner cage. The formation of these cut-outs or recesses is such that in either movement of the pawls there is no lateral resistance to the head portions of the pawls, and therefore there is no tendency upon the descent of the inner cage of the pawls to force the side members 4 4 in either direction.

6 is a false bottom or brace portion formed at the lower end of the outer cage and uniting the guideways 5' 5'.

7 is a beam or top brace uniting the guideways 5' 5' and passing through the supporting members 4² 4².

8 is a brace portion rigidly fixed to the cross-beam 7 near the center thereof and carries the ends of the levers 10, the latter being pivoted to the top of the brace portion 8 at 10' 10' and to the upper ends of the supporting members 4² 4².

9 is a spring attached to the top of the beam 7, in the center thereof, the ends of said spring resting in the supporting members 4² 4² at 9', underneath the levers 10 10.

11 is a suspension-rope attached to the top of the supporting members 4² 4² at 12 by rings or any other suitable means.

13 13 are guide-braces attached to the outer cage or guideways 5' 5' and serve to steady the inner cage in position. The inner frame or cage of my safety elevator is constructed for usage in the customary way; but by the novel arrangement of the same, in connection with the outer frame or cage, its important function is not apparent until an accident occurs by the breaking of the suspension-rope 11, carrying the cages. The instant this occurs the inner cage thus released will by reason of its own weight and gravity drop

as far as the false bottom or brace 6 of the outer cage. The tension of the spring 9 being released by the breaking of the suspension-rope will assist in this movement. The
5 heads of the pawls 5, seated in the side braces 4 4, will be forced downward by the dropping of the inner cage, thus forcing outward the ends of the said pawls, which will immediately come into engagement with the teeth
10 3 3, thus arresting the downward flight of the elevator.

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

15 A safety device for elevators comprising an outer cage, an inner cage, a spring member intermediate the cages and held under ten-

sion in the normal operation of the elevator, pawls pivotally mounted in the walls of the outer cage, and racks fixed in the elevator-shaft with which said pawls are adapted to engage, the walls of the inner cage being formed with recesses to receive the inner ends of said pawls, the walls of said recesses being formed and operating to force the pawls into engagement with the racks upon breakage of the elevator-supporting cable. 25

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK A. WEIGEL.

Witnesses:

Mrs. C. S. HELMICK,
C. S. HELMICK.