

(No Model.)

2 Sheets—Sheet 1.

G. P. HEDGE.

AUTOMATIC STOP FOR ELEVATORS.

No. 386,743.

Patented July 24, 1888.

Fig. 1.

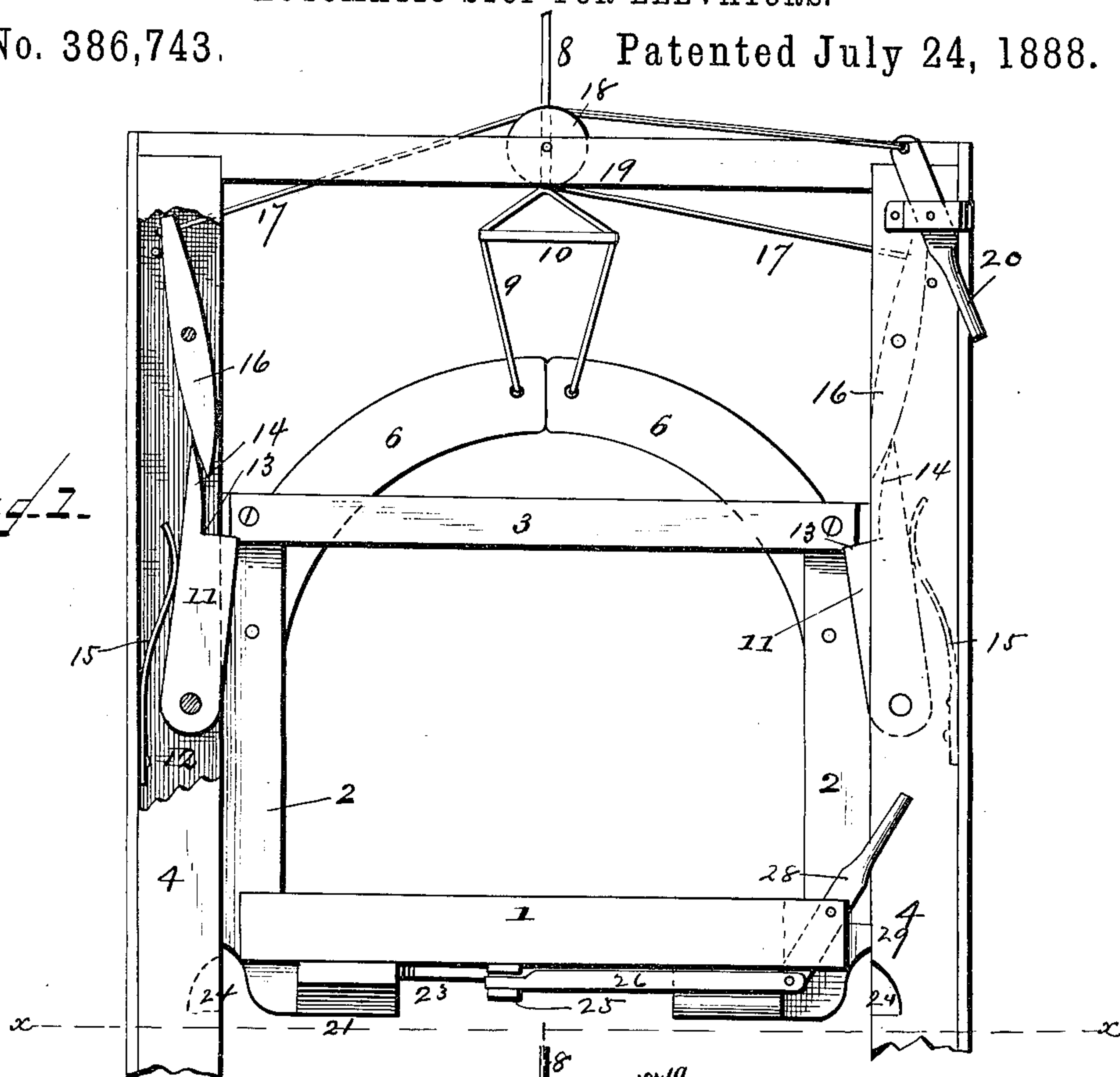
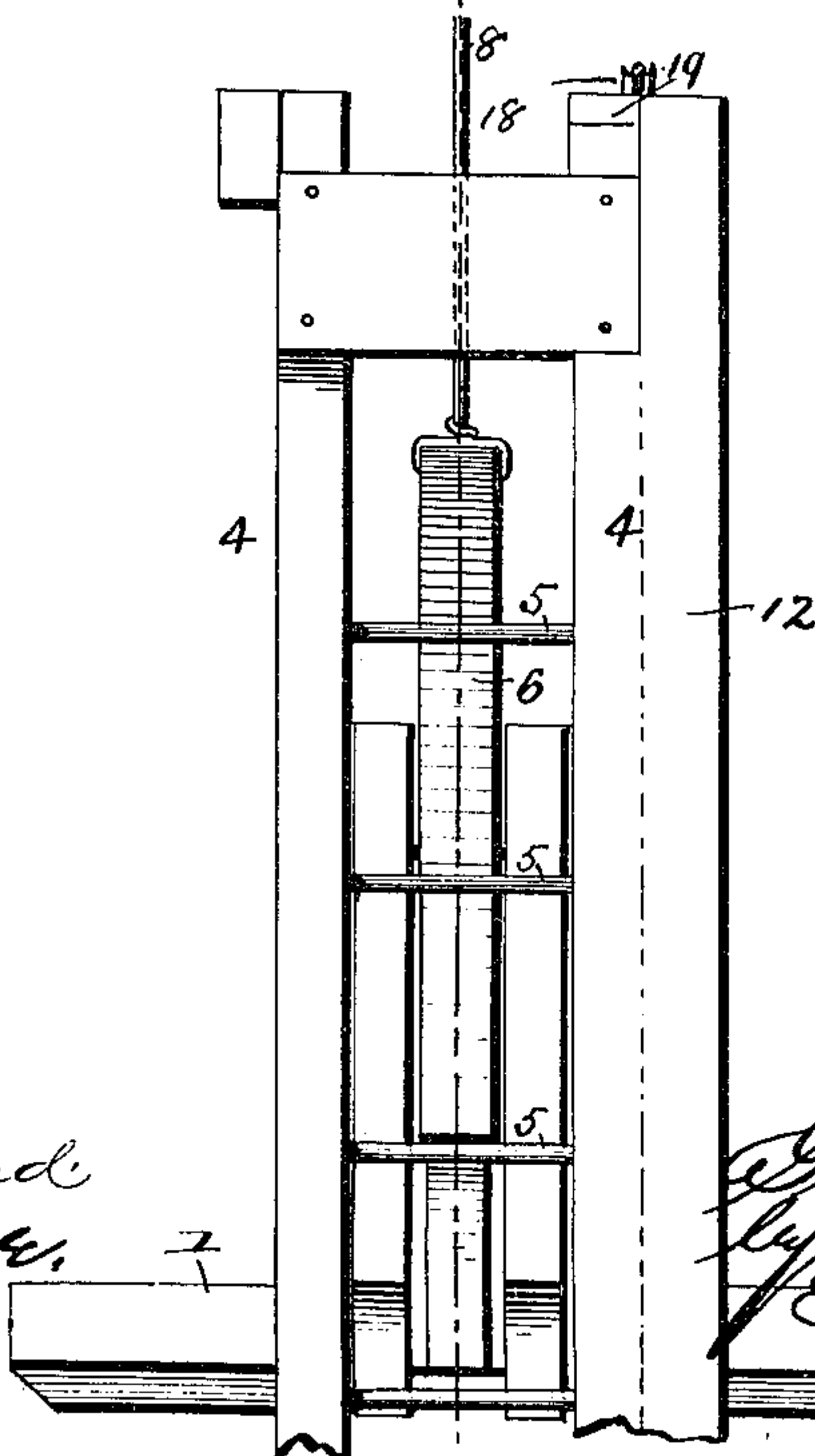


Fig. 2.



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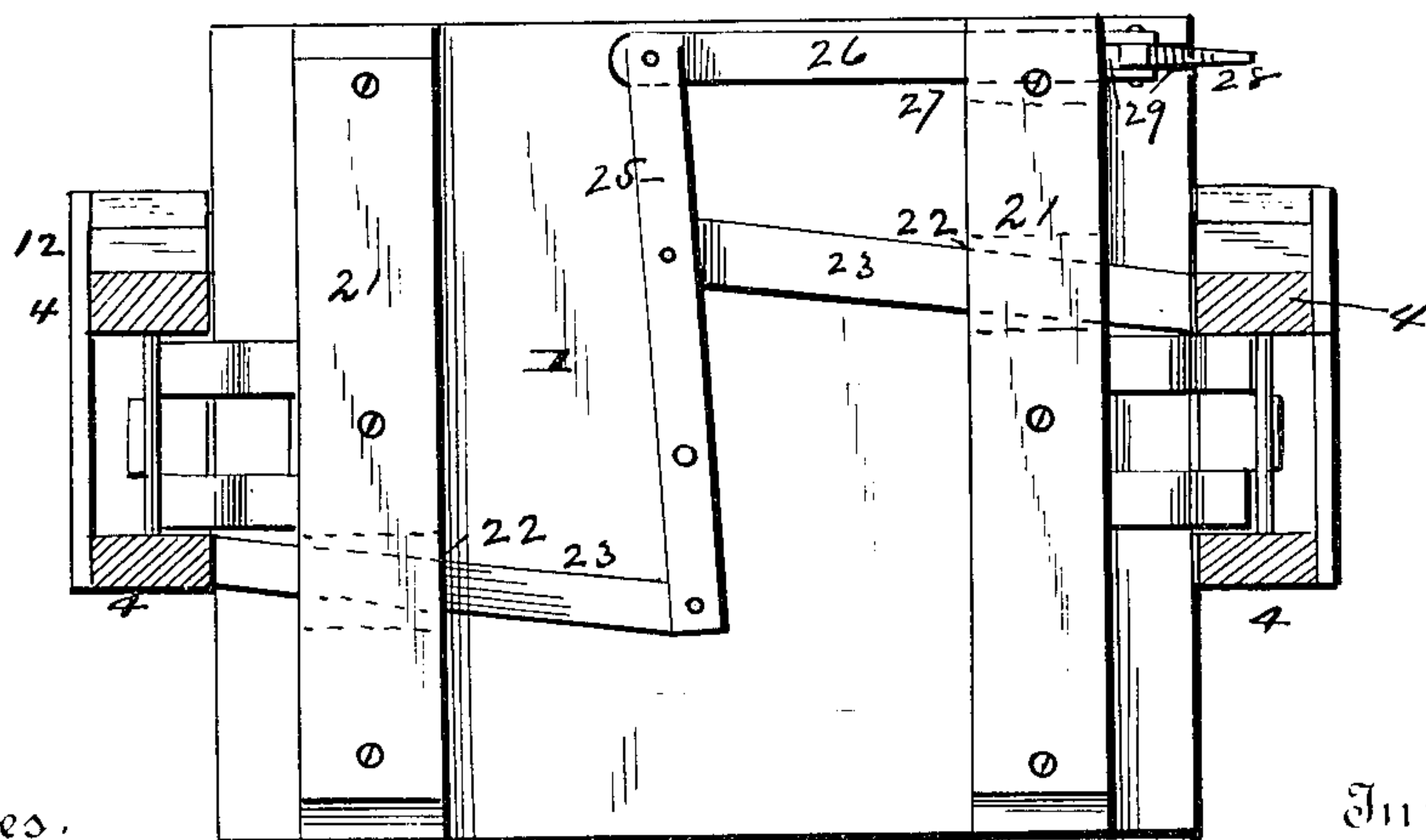
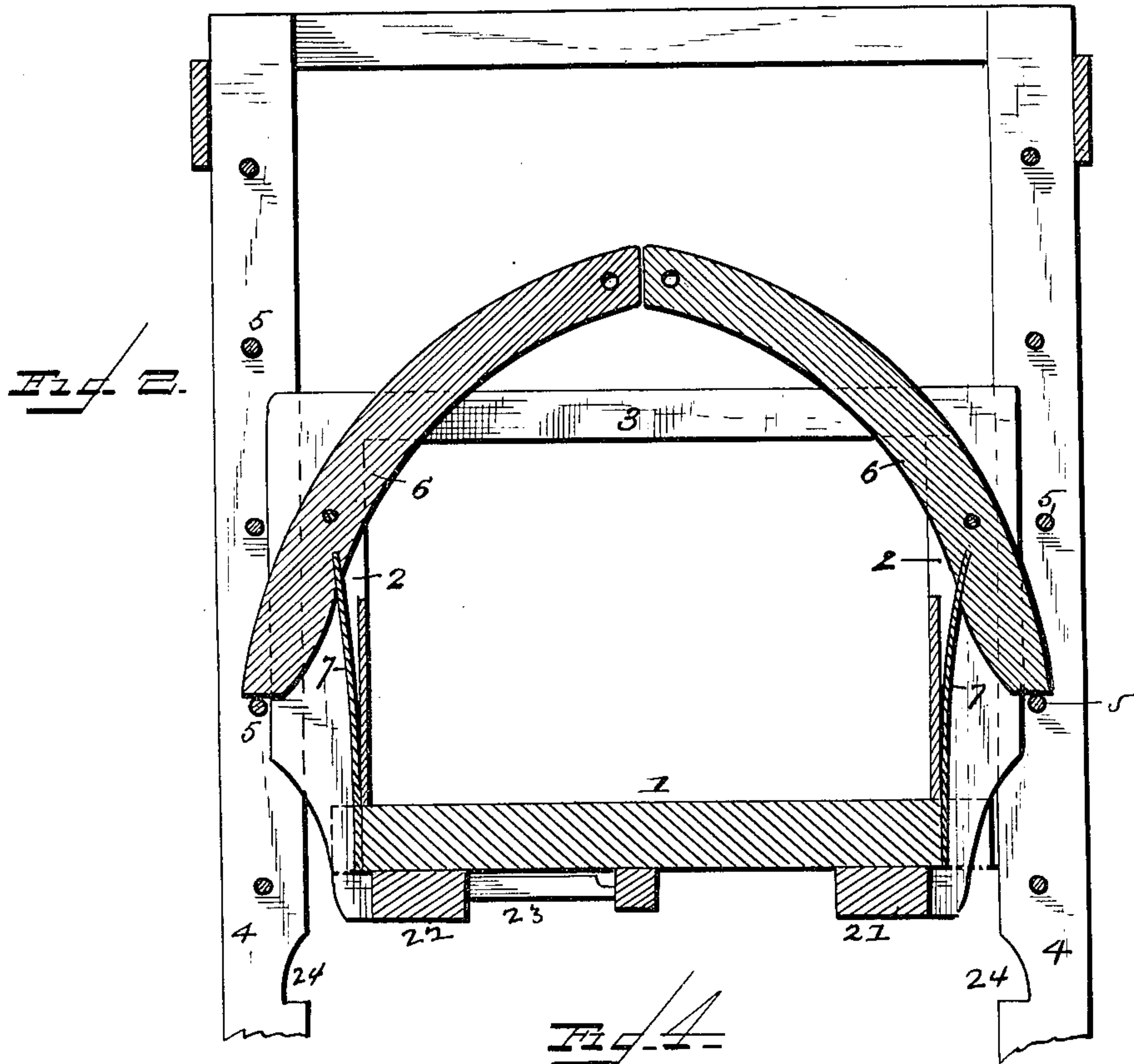
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Inventor,
George P. Hedge,
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UNITED STATES PATENT OFFICE.

GEORGE PRIOR HEDGE, OF CARTHAGE, MISSOURI.

AUTOMATIC STOP FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 386,743, dated July 24, 1888.

Application filed February 18, 1888. Serial No. 264,488. (No model.)

To all whom it may concern:

Be it known that I, GEORGE PRIOR HEDGE, a citizen of the United States, and a resident of Carthage, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Automatic Stops for Elevators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front view of as much of the guide-bars of my improved elevator as is necessary to fully illustrate my invention and of the cage, showing parts in dotted lines. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a side view of the parts shown in Fig. 1; and Fig. 4 is a horizontal sectional view taken on line *xx*, Fig. 1, and looking upward against the bottom of the cage.

The same numerals of reference indicate the same or corresponding parts in all the figures.

This invention has relation to elevators for use in buildings and in mines or similar places, and more particularly to stop devices for such elevators, by means of which the cage may be automatically stopped if the rope should break, and for stopping and holding the elevator at the various levels and at the uppermost level; and it consists in the improved construction and combination of parts of such an elevator, as hereinafter more fully described and claimed.

In the accompanying drawings, the numeral 1 indicates the floor of the cage, 2 2 indicate the upright side pieces of the same; and 3 3 are the top beams of the cage. These parts of the cage may be modified in any suitable manner, according to the character and use of the elevator, as the cage may be open, as shown in the drawings, or it may be inclosed and cased in when used for the transport of passengers in buildings.

The sides of the elevator-shaft have two pairs of guide-bars, 4, which are connected by transverse cross-bars or rounds 5, at short distances from each other, and two inwardly-curved pawls or levers, 6, are pivoted between the side pieces of the cage near their lower or

outer ends, and have springs 7, forcing the said ends outward, while the hoisting-rope 8 is secured to the inner or upper ends of the said pawls or levers, the rope being divided or formed with two ends, 9, having a spreader, 10, between them and secured to the ends of the levers, which ends project above the top beams of the cage, rocking between them. It will now be seen that when a strain is upon the hoisting-rope, either by hoisting the cage or by letting it down, the upper arms of the levers are drawn upward and slightly outward, which will draw the lower or outer ends in between the side pieces of the cage, compressing the springs, and the cage may travel freely up or down in the shaft; but if the rope should break or otherwise be slackened the springs will force the lower ends of the levers out, causing them to engage the cross-pieces or rounds between the guide-bars, stopping the cage, and in this manner it will be impossible for the cage to drop by any accident, as the release of the upper ends of the levers will cause them to sink and drop together by their own weight, as well as by the action of the springs against the lower arms, so that the action of the levers will be perfectly positive, even if the springs by an accident should have become inoperative.

Pawls or shouldered and beveled bars 11 are pivoted at their lower ends in casings 12 upon the sides of the guide-bars at the upper level of the elevator-shaft, having the shoulders 13 facing upward, and having the beveled sides 14 projecting outward into the shaft, springs 15 in the casings forcing the pawls out, and the upper narrow arms of the pawls have the lower ends of levers 16 bearing against them, so that the pawls may be forced inward against the springs when the upper ends of these levers are drawn together. Cords or chains 17 are secured to the upper ends of these levers and pass around a pulley, 18, journaled in a cross-piece, 19, in the top of the shaft, and the ends of these cords or chains are secured to the upper arm of a lever, 20, fulcrumed upon the side of one of the casings, so that by tilting this lever with its lower arm toward the shaft the cords or chains may be drawn and the pawls drawn back into the casings. It will be seen that

when the elevator-cage is hoisted up and arrives to the upper level the side edges of the bottom of the cage will tilt the pawls in against the springs, and as soon as the said
 5 bottom has passed the shoulders of the pawls they will spring out again and form stops for the cage, preventing it from falling or descending until the lever has been tilted, the pawls thus preventing any accidents caused by the
 10 rope breaking or becoming slackened, or any other accidents which are liable to happen, especially at mines, by the cage falling from the top level.

The bottom of the cage is formed with two
 15 cross-pieces, 21, having transverse slots 22, in which two bolts, 23, slide, which bolts may engage upwardly-facing notches 24 in the inner faces of the guide-bars, the notches being preferably formed at each landing of the ele-
 20 vator-shaft, and the inner ends of these bolts are pivoted to the two arms of a lever, 25, fulcrumed under the bottom of the cage and having a rod, 26, pivoted to its outer end, which rod slides in a slot, 27, in one of the cross-
 25 pieces, and has the lower arm of a lever, 28, pivoted to it, the lever being fulcrumed in a slot, 29, in the bottom of the cage. It will be seen that the bolts may be tilted out by means of this lever, so as to engage the stopping-
 30 notches in the guide-bars, and the cage may thus be held regardless of the hoisting-rope at each landing by these bolts and notches.

All these stopping devices may be used in one elevator, and are preferably used in one
 35 elevator; but it follows that they may be used separately, and the devices are equally as applicable for passenger-elevators and freight-elevators for buildings as for mining-elevators or for any other hoisting apparatus using
 40 guide-bars and a cage.

If desired, the cross-bars or rounds between the guide-bars may be substituted by ratchet-bars or similar devices; but I prefer to use

two pairs of guide-bars and the cross-bars or rounds between them, as the two guide-bars 45 serve to give the cage a steadier motion than a single guide-bar at each side, and the rounds or cross-bars are easier applied and at less expense than ratchet-bars, besides offering better hold for the ends of the levers. 50

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an elevator, the combination, with the cage and the guide-bars, of pawls pivoted at 55 the lower ends in casings at the sides of the shaft and having upwardly-facing beveled shoulders projecting out into the shaft, springs forcing the pawls outward, levers fulcrumed at their middles in the casings above the pawls 60 and bearing with their lower ends against the upper ends of the pawls, cords attached to the upper ends of the levers and passing around a pulley at the middle of the top of the shaft, and a lever at the side of the shaft having the 65 cords secured to its upper end, as shown, and for the purpose specified.

2. In an elevator, the combination, with the cage and the guide-bars having upwardly-facing notches in the facing sides at the landings, 70 of bolts sliding under the floor of the cage and engaging the said notches, a lever fulcrumed under the floor of the cage and having the inner ends of the bolts pivoted to it, a rod pivoted to one end of this lever, and a hand- 75 lever fulcrumed in a slot in the floor of the cage, and having the other end of the rod pivoted to its lower end, as shown, and for the purpose specified.

In testimony that I claim the foregoing as my 80 own I have hereunto affixed my signature in presence of two witnesses.

GEORGE PRIOR HEDGE.

Witnesses:

ISAAC CARTER WHEELER,
 EMANUEL ELIAS EDWARDS.