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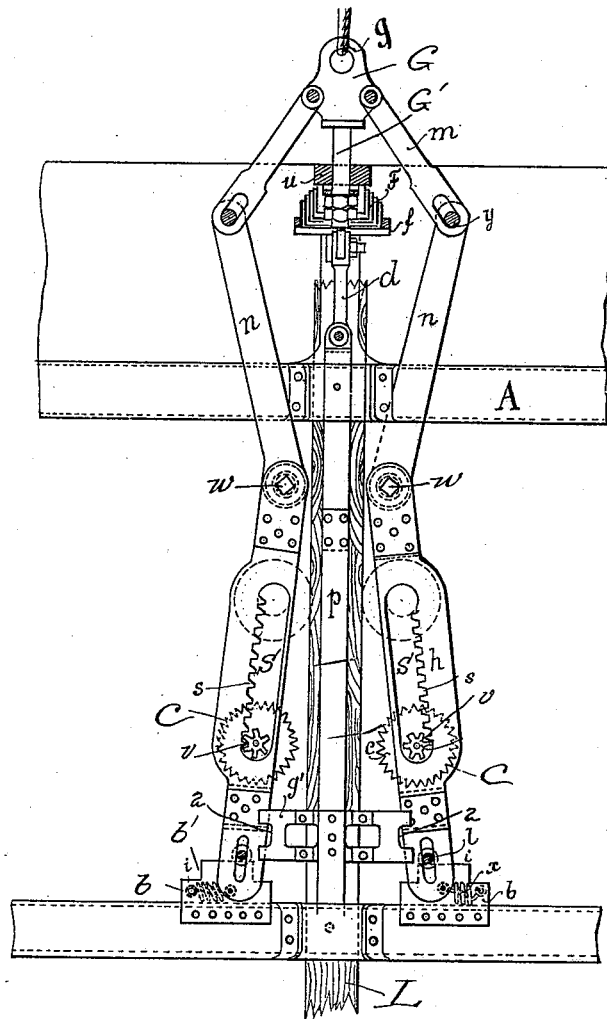
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C. KLINIK & F. ZAWISCHA.
SAFETY DEVICE FOR ELEVATORS.

No. 419,265.

Patented Jan. 14, 1890.

Fig. 1.



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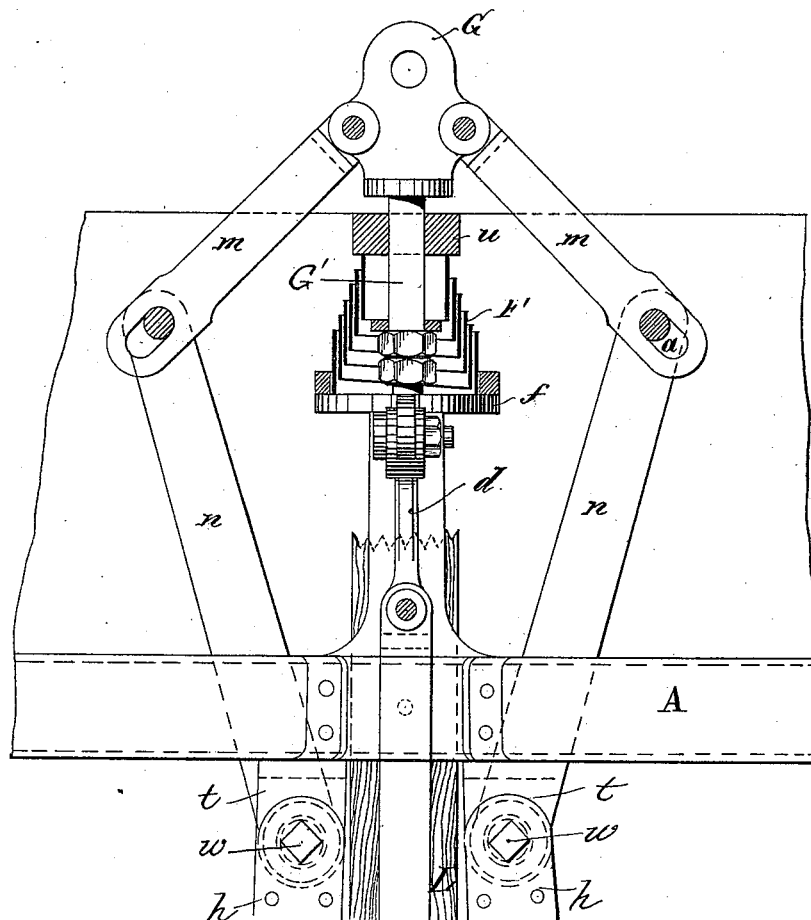
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Fig. 2.



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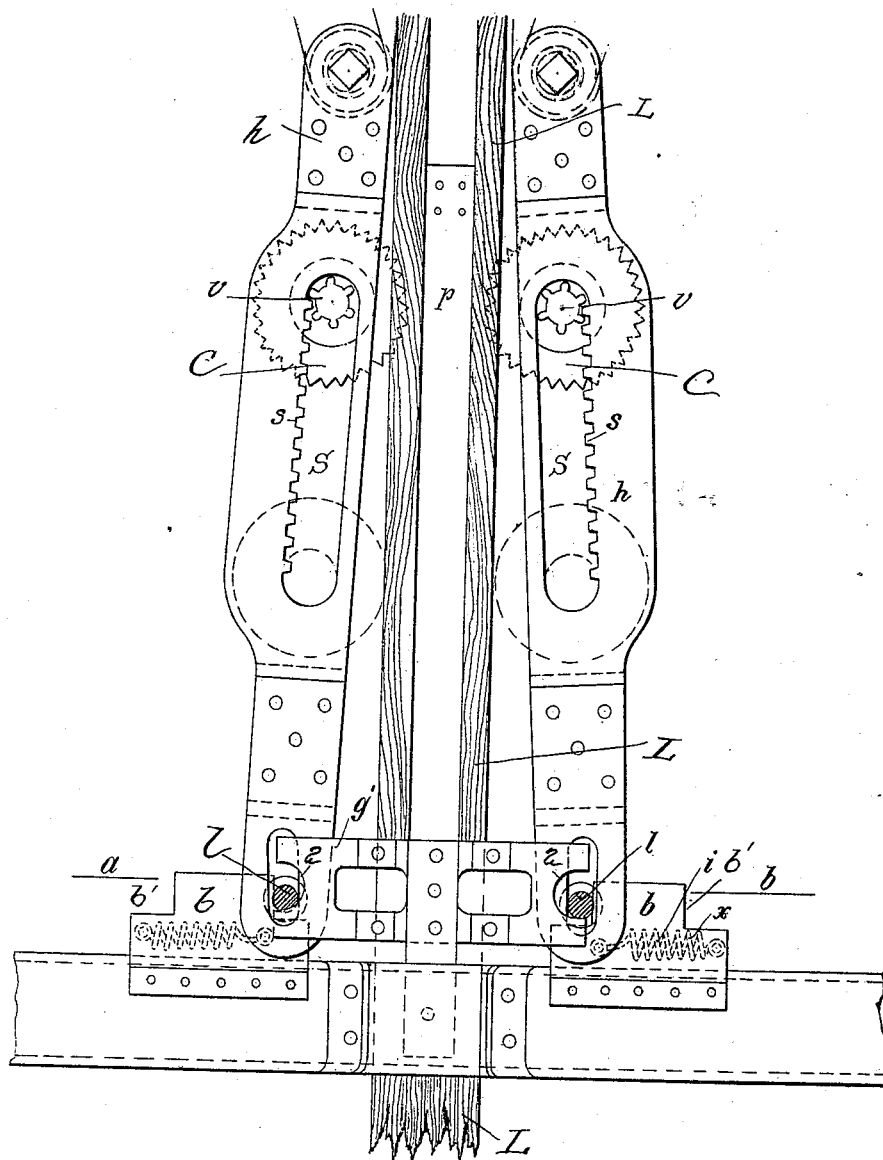
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Fig. 3.



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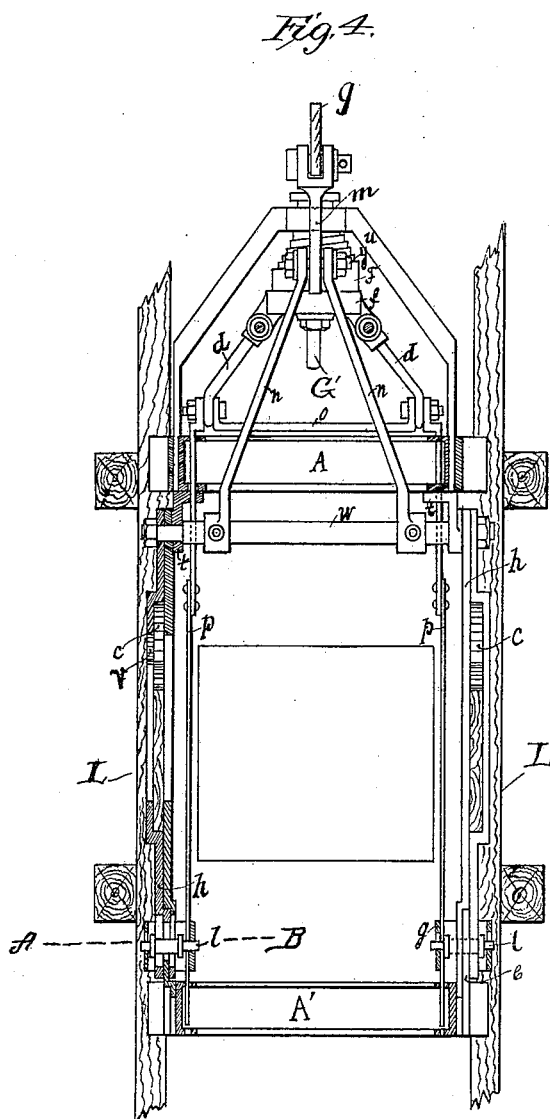
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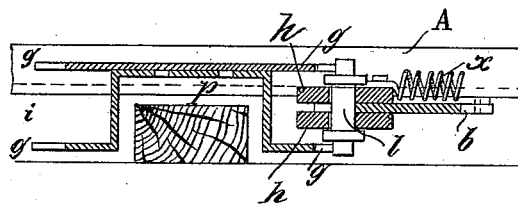
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Fig. 5.



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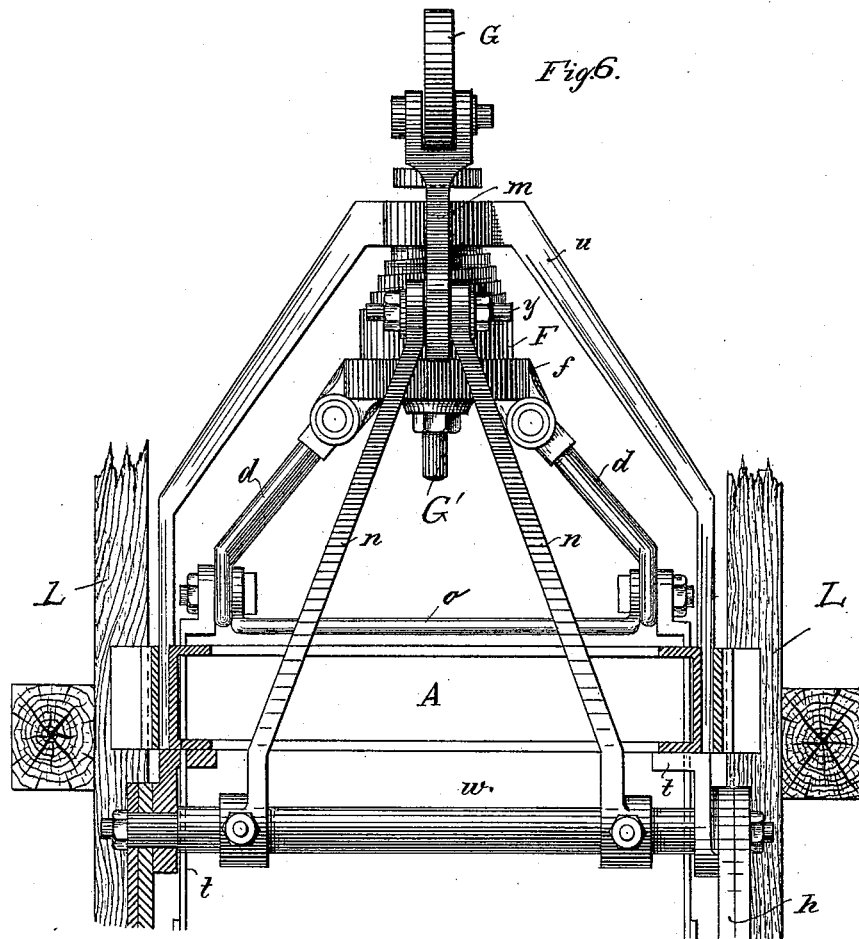
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UNITED STATES PATENT OFFICE.

CONSTANTIN KLINIK, OF KÖNIGSHÜTTE, AND FRANZ ZAWISCHA, OF
BEUTHEN, PRUSSIA, GERMANY.

SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 419,265, dated January 14, 1890.

Application filed July 18, 1889. Serial No. 317,888. (No model.)

To all whom it may concern:

Be it known that we, CONSTANTIN KLINIK and FRANZ ZAWISCHA, of Königshütte and Beuthen, Silesia, Prussia, Germany, have invented certain new and useful Improvements in Safety Attachments for Freight and Passenger Elevators; and I do hereby declare that the following is a full, clear, and exact description of the same.

In the accompanying drawings is shown an elevator with a catch attached.

In the drawings, Figure 1 is a view of the whole apparatus with the cage drawn up and the brake out of operation. Figs. 2 and 3 are similar views of the upper and lower parts of Fig. 1. Fig. 4 is a side view. Fig. 5 is a cross-section on line A B of Fig. 4. Fig. 6 is a detail view of the upper part of Fig. 4.

In the figures the guideways of the elevator-shaft are shown at L, the upper iron of the elevator at A, and the lower iron at A', the lifting-head at G, and the rope at 9. To the tension-plate *f* of the spiral spring F are connected the two arms *m* and *m'* by means of the head G, to which the arms are pivoted, and the bar G'. To these arms the arms *n* are pivotally joined. These latter are in connection with the cross-shafts *w*, Figs. 1 and 4, which turn in bearings or blocks *t*, and which are secured or riveted to the upper iron A of the cage. On the ends of these shafts are placed the catch-arms *h*, essential elements of this invention. Each of these catch-arms, Fig. 5, is made of two exactly symmetrical parts riveted together, so as to leave a space between in which a sharp toothed disk C can move up and down. This disk is guided in slots S of the catch-arm. One side of the slot has rack-teeth *s*, in which mesh the pinions *v*, cast in one piece with the shaft of the disks. The lower ends of the catch-arms, Figs. 1 and 3, are provided with a longitudinal slot to receive movable locking-bolts *l*. These lower ends embrace plate *b* on the lower iron A', and are thus steadied while allowed swinging action, the bolts resting normally upon the upper edge of the plates. If the elevating-rope 9, Figs. 1 and 4, is stretched, and the spring F therefore compressed, then the catch-arms occupy the position shown in Fig. 1, and the toothed disks are at the lowest point

of the slot S, so that they do not come in contact with the guideways L. The locking-bolt *l* in the lower end of the catch-arm is then in position on the upper edge of the plate *b*; but if the rope breaks the tension of the spring F, being brought into operation, communicates motion by means of the arms *m* and *n* to the rock-shafts *w w*, and so forces the arms *h* inward and the toothed disks against the guideways. At the same time the bolt *l* is carried along the edge of the plate *b* and falls into the depression, notch, or cut-away part *b'* of the same, and stays in that position as long as the spring F acts on the catch-arms. The bolts are retained in this position by a transverse catch-bar *g'*, having notches 2 2. This bar is vertically movable and is connected with the tension plate *f* by rods *p* and *d*. As shown in Fig. 1, the normal position is such that the notches 2 2 are above the plane of the bolts, and when the plate falls at the breaking of the rope the catch-bar falls into the position shown in Fig. 3, so that the bolts *l* lie in the notches, and when the apparatus is reset the bolts will be lifted from the notches *b'* by the elevation of the catch-bar 9, and thus the arms *h* and all the parts be allowed to return to normal position.

The arrangement is such that the catch-arms *h h* converge upwardly. This is a very essential feature of the present invention, for thereby the toothed disks, taking hold but very little in the beginning, are driven by the toothed slot of the catch-arms as the cage falls farther, and so continually dig deeper into the guide, thus gradually bringing the cage to rest. The greater the angle formed by the catch-arms in their gripping position the quicker and better the device works. The fulcrums of the catch-arms *h* are applied as near as possible to the guideway. The length of the catch-arms *h* has also considerable influence on the working of the catch. In the drawings these arms are shown proportionally short. Double the length gives the proper measure. This apparatus can be also used with iron guides, only in that case the toothed disks C must be replaced by others with smaller and sharper teeth. The springs *x* serve to bring the arms *h* back to their normal

position when the toothed disks C are out of operation.

We claim as our invention—

1. In combination, the guide L, the movable
5 arms *h*, carrying the gripping-disks, the movable plate *f*, connections therefrom to the arms *h*, the spring F, operating on said plate, the elevator-rope in connection with the plate *f*, the locking-bolts for the arms *h*, the bar *g'*,
10 for releasing said bolts, and the connections from said releasing-bar *g'*, extending to the plate *f*, substantially as described.

2. In combination, the guide L, the elevator-rope, the catch-disks C C, the movable arms
15 *h*, carrying said disks, connections from said

arms to the elevator-rope, whereby the arms are held in their outward position to keep the disks from engagement with the guide L, and automatic locking-bolts *l*, for holding the arms in position when moved inward, and the
20 transverse bar *g'*, for engaging said bolts, with means for moving the said bar, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

CONSTANTIN KLINIK.
FRANZ ZAWISCHA.

Witnesses:

AUGUST ZAWISCHA,
ALFONS GOETZLER.