

(No Model.)

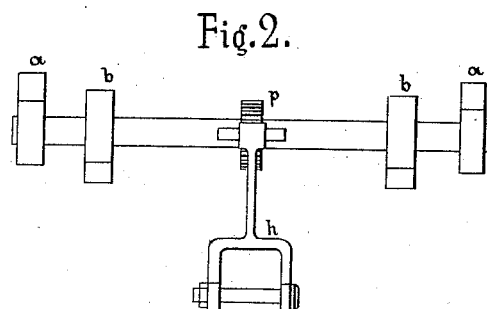
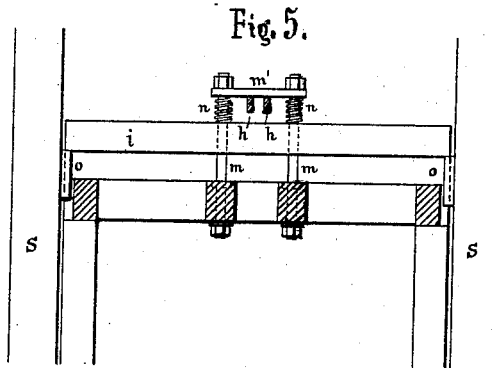
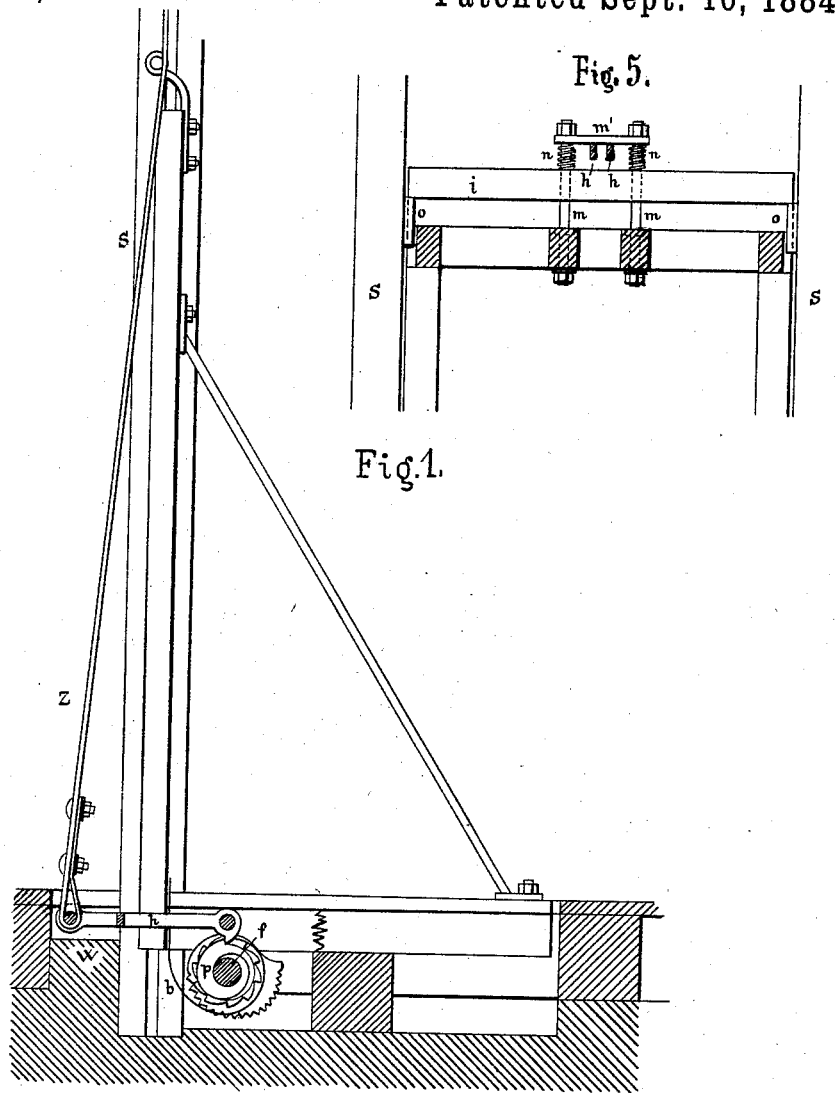
2 Sheets—Sheet 1.

M. MARTIN.

SAFETY APPARATUS FOR LIFTS.

No. 305,211.

Patented Sept. 16, 1884.



Witnesses:
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W. H. Blandford

Inventor:
M. Martin
by *Marcellus Bailey* Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

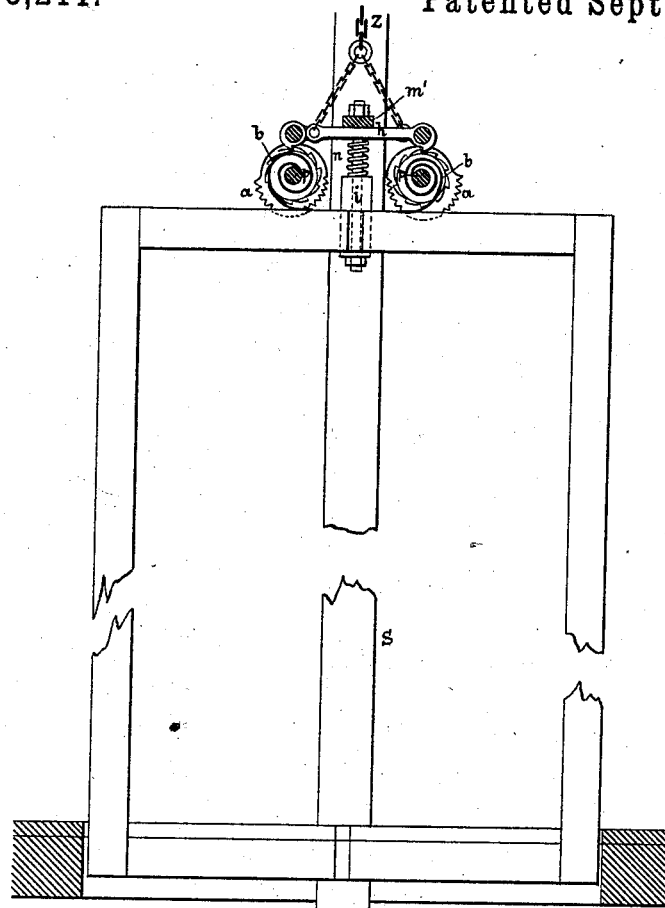
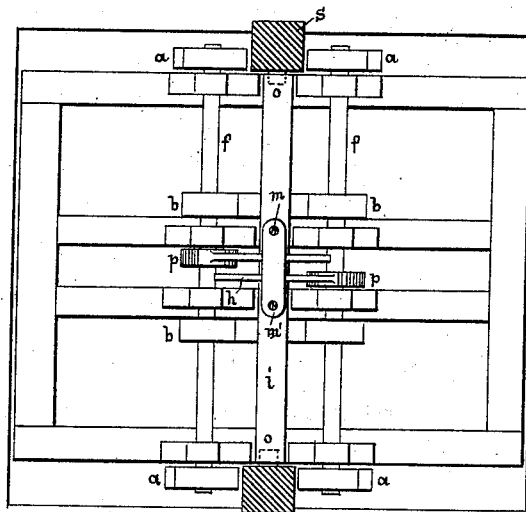


Fig. 4.



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UNITED STATES PATENT OFFICE.

MORITZ MARTIN, OF BITTERFELD, PRUSSIA, GERMANY.

SAFETY APPARATUS FOR LIFTS.

SPECIFICATION forming part of Letters Patent No. 305,211, dated September 16, 1884.

Application filed July 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, MORITZ MARTIN, of Bitterfeld, Prussia, Germany, manufacturer, have invented a new and useful Improvement in Safety Apparatus for Lifts, of which the following is a specification.

My invention relates to safety apparatuses for lifts, serving to automatically stop the lift in case of breakage of the winding-rope; and its object is to render the tension of the springs of the apparatus independent of the weight of the lift and its charge.

A lift provided with my improved apparatus is shown on the annexed two sheets of drawings in two different modifications.

Figure 1 is a sectional side view of a lift with a single apparatus, and Fig. 2 a plan of the latter. Fig. 3 shows in side view, partly in section, and Fig. 4 in plan, a lift with double apparatus. Fig. 5 is a sectional front elevation of a part of the same.

The apparatus consists, in the first place, of the shaft *f*, the toothed eccentrics *a*, and the springs *b*. These parts are old. The shaft *f* is mounted in bearings either at the bottom of the lift, as in Fig. 1, or at the top, as in Figs. 3 and 4. The eccentrics *a*, adapted to catch into the guiding-posts *s*, are keyed on the shaft, and the springs *b* are fastened with one end to the shaft and with the other to a part of the lift. In addition to the said pieces, the shaft *f* carries a ratchet-wheel, *p*, and to the lift is pivoted a lever, *h*, having a short arm, forming a pawl that engages with the teeth of the wheel *p*, and a long arm, to which is attached the winding-medium, consisting in a rope, a strap, or a chain. In the lift, Fig. 3, each of the two levers *h* is connected by a short chain to the winding-chain *z*.

To put the apparatus into working order, the shaft *f* is turned by a key or other instrument, so as to impart to the springs the tension required for enabling them, when released, to press the eccentrics against the guiding-posts. The springs are then kept in their state of tension by the pawl end of the lever bearing against a tooth of the ratchet-wheel, and the lever is maintained in the proper position by the pull of the winding-rope; but if the winding-rope breaks, the le-

ver *h*, not being held any more, is tilted by the power of the springs transferred through the ratchet-wheel on the short arm of the lever, the wheel becomes disengaged, and the springs turn the shaft so as to drive the eccentrics with their teeth into the wooden guiding-posts. The arrangement of parts may be such, as in the construction shown by the drawings, that the gravity of the lever *h* will cooperate with the force of the springs in releasing the ratchet-wheel *p*. With this arrangement the greatest power with which the springs may act is not limited to the weight of the lift; but it depends upon the tension with which they are wound up. The proportion between the two arms of the lever *h* may be so varied that said lever will derive any desired degree of power from the constant weight of the elevator. This constant weight may therefore, by a proper adjustment of the lengths of the arms of the lever *h*, be balanced against any desired tension of the springs. It follows that for actuating the eccentrics a greater power may be stored up in the springs than is possible with other constructions of the same kind.

In order to prevent the lever *h* from disengaging with the ratchet-wheel when the lift, at the end of its descent, settles on the ground-timbers of the lowest floor and the rope becomes slack, an abutment must be provided for, which keeps the lever in its proper position. With the apparatus, Fig. 1, this abutment is formed by a portion, *w*, of the foundation, the height whereof is such as that the lever will be close to it when the lift rests on its supports. In the apparatus, Figs. 3 to 5, the device serving to retain the levers in gear with the ratchet-wheels consists in the cross-beam *i*, movable on and guided by two bolts, *m*, and in two stops, *o*, fixed to the posts *s* at such height that just before the lift settles on the ground-timbers the beam *i* will strike on them and be raised relatively to the lift by so much as is required to bring the same close to the levers *h*. The beam is then in a position to serve as support for the levers when the chain *z* becomes slack. On the bolts *m* there are springs *n*, serving to press down the beam *i* as soon as the lift rises again. Moreover, the bolts are

connected by a cross-piece, m' , serving to prevent the levers from being drawn beyond the horizontal position.

I claim as my invention—

5 1. In a safety apparatus for lifts, the combination, with a shaft, f , the springs b , and the toothed eccentrics a , of the ratchet-wheel p , keyed on the shaft f , and the lever h , attached by its long arm to the winding medium and
10 engaging by its short arm with the said ratchet-wheel, substantially as described.

2. The combination, with a shaft, f , springs b , eccentrics a , ratchet-wheel p , and lever h , of

a stop or stops having such position as to prevent the lever h from disengaging with the 15 ratchet-wheel p when the lift is at the bottom of its course and the winding medium is slack, as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two sub- 20 scribing witnesses.

MORITZ MARTIN.

Witnesses:

HENRY SPRINGMANN,
B. ROE.