

J. F. SMITH.
ELEVATOR.

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1,020,458.

Patented Mar. 19, 1912.

Fig. 1

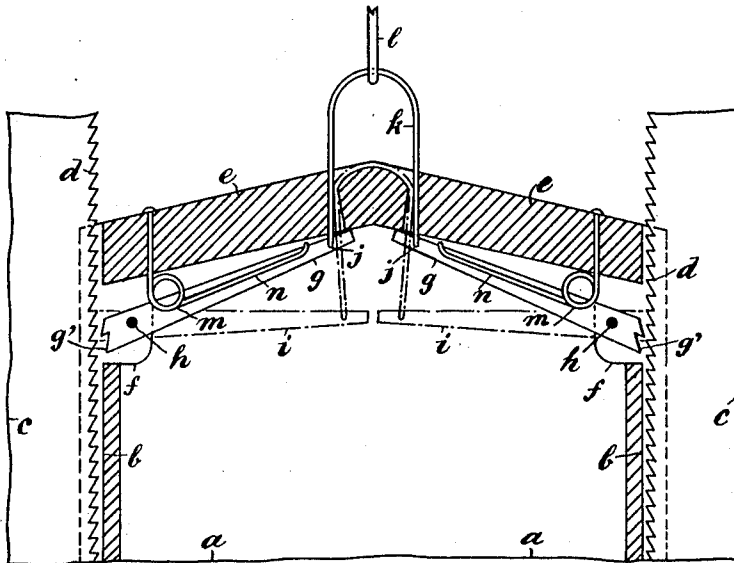
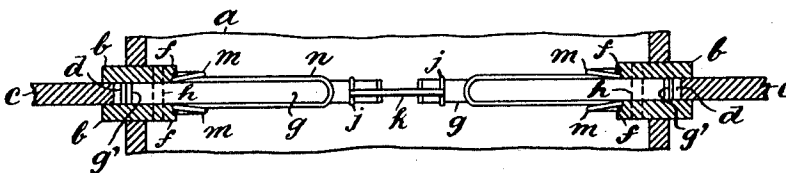


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH F. SMITH, OF ANCASTER, ONTARIO, CANADA.

ELEVATOR.

1,020,458.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed August 28, 1911. Serial No. 646,337.

To all whom it may concern:

Be it known that I, JOSEPH FREIR SMITH, a citizen of the Dominion of Canada, residing at Ancaster, in the township of Ancaster, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

10 This invention relates to elevators and it has more particular reference to the means for suspending the cage or platform of either a passenger or freight elevator to the suspension mechanism.

15 The main object of my invention is to provide a simple and effective means whereby it is rendered impossible for the elevator to suddenly descend or drop either when the chain or cable breaks or when
20 started too suddenly.

A further object of my invention is to furnish an effective safety device whereby accidents are rendered impossible.

25 A still further object of my invention is to provide means whereby slack or sagging in the suspension means is entirely eliminated.

30 With these objects in view, my invention consists essentially of a pair of pivoted levers or dogs having toothed outer ends for coöperation with similarly toothed runners or guides arranged in the elevator shaft, said levers or dogs having connected to their inner ends the suspension means
35 and being adapted when the said means breaks or is started too rapidly to instantly engage with the aforesaid toothed runners and arrest the descent of the elevator.

40 For a clear understanding of the invention reference is to be had to the following description and to the accompanying sheet of drawings, in which:—

45 Figure 1, is a fragmentary sectional elevation of the upper part of an elevator having my invention applied thereto, only such elements being indicated as are essential to a clear comprehension of my invention. Fig. 2, is a part sectional plan of the dogs and their appurtenant parts.

50 Like characters of reference refer to the same parts throughout the specification and on the drawings.

55 *a*, is the elevator body or frame and *b*, the runners thereof and which may be made in any of the well known ways.

c, *c*, are the vertical guides up and down

which the aforesaid runners are adapted to be traversed, and they are, according to my invention furnished on their inner edges with teeth or serrations *d*, *d*, for the purpose hereafter explained. Or, said teeth or serrations *d*, *d*, may be formed upon bars afterward to be secured on the guides *c*, *c*.

Transversely of the roof of the elevator car *a*, I fix a stout beam or girder *e*, which has depending therefrom brackets or flanges *f*, *f*, and between said brackets or flanges I pivotally mount fall levers or dogs *g*, *g*, by means of pins or pivots *h*, *h*. These levers or dogs *g*, *g*, are preferably mounted as shown; that is to say with the pivotal point near the outer end thereof whereby their normal tendency will be to fall into or occupy the position shown by the dot-and-dash lines *i*, *i*, in Fig. 1, and they are provided at their outer ends with toothed parts *g'*, *g'*.

Suitably attached to the inner ends of the levers *g*, *g*, at *j*, *j*, is an inverted U-shaped flexible link or suspension hook *k*, to which is attached one end of the suspension cable or chain *l*.

m, *m*, are hammer springs attached to the beam *e*, the tails *n*, *n*, thereof tending always to project the levers or dogs *g*, *g*, downward. Any other suitable type of springs may however be employed.

In use, the elevator *a*, may be raised or lowered in the well known way and by any of the well known means. Should the cable or chain *l*, however break, or the elevator car *a*, be started too rapidly to descend whereby a slack or sagging of said cable arises the dogs *g*, *g*, will instantly fall or be downwardly forced, bringing the toothed parts *g'*, *g'* instantly into locking engagement with the toothed guides *c*, *c*, whereupon further descent is automatically arrested. Furthermore it will be readily seen that the weight of the elevator car and its contents will keep said dogs *g*, *g*, firmly locked in engagement with the toothed parts *d*, *d*, when once brought into contact.

From the foregoing description and accompanying drawings it will be readily seen that by my invention I provide an exceedingly simple and effective device for the purpose set forth. Further the sudden descending of elevators caused by inexperienced or mischievous persons is positively eliminated whereby sudden shocks are done away with, and the application of my in-

vention to all types of elevators other than that above referred to will be self evident to those skilled in the art to which it appertains without further explanation or illustration.

It is to be understood that this invention includes within its purview such changes as may be made within the scope of the appended claim.

10 Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

15 In a device of the character described, the combination with an elevator car comprising a transverse top member, of a toothed guide member located upon each side thereof, a pair of transversely disposed fall dogs located entirely beneath said top member and pivoted to said car adjacent their outer ends, said dogs having teeth formed at their outer ends adapted to engage with the teeth

of the guides when the inner ends of the dogs move downwardly with relation to the car, the inner ends of said dogs terminating short of each other, springs bearing between 25 the upper portions of the dogs and the transverse top member and normally tending to move the inner portions thereof downwardly, and a suspension yoke of inverted U shape, the legs of which pass 30 through separate tapered openings formed in the transverse top member and are pivotally connected at their extremities to the inner ends of said fall dogs, the longer ends of the tapered openings being at the bottom. 35

Signed at, Hamilton, Ontario, Canada, this 23rd day of August, 1911.

JOSEPH F. SMITH.

In the presence of—

ALFRED T. BRATTON,
E. S. GILBERT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."