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PATENTED JULY 10, 1906.

J. DODDS.
FIRE ESCAPE.

APPLICATION FILED SEPT. 30, 1905.

3 SHEETS—SHEET 1.

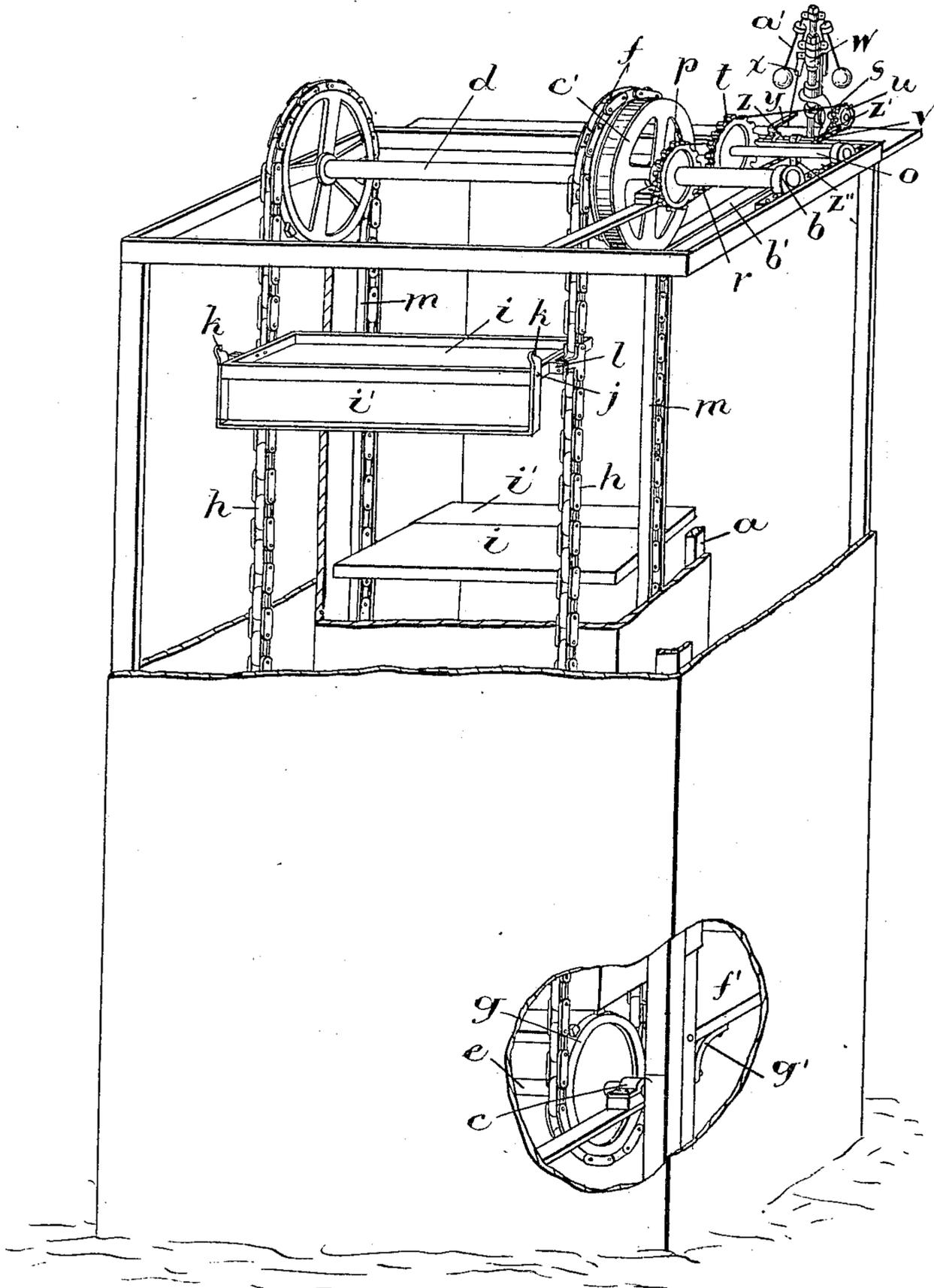


Fig. 1

Witnesses.

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3 SHEETS—SHEET 2.

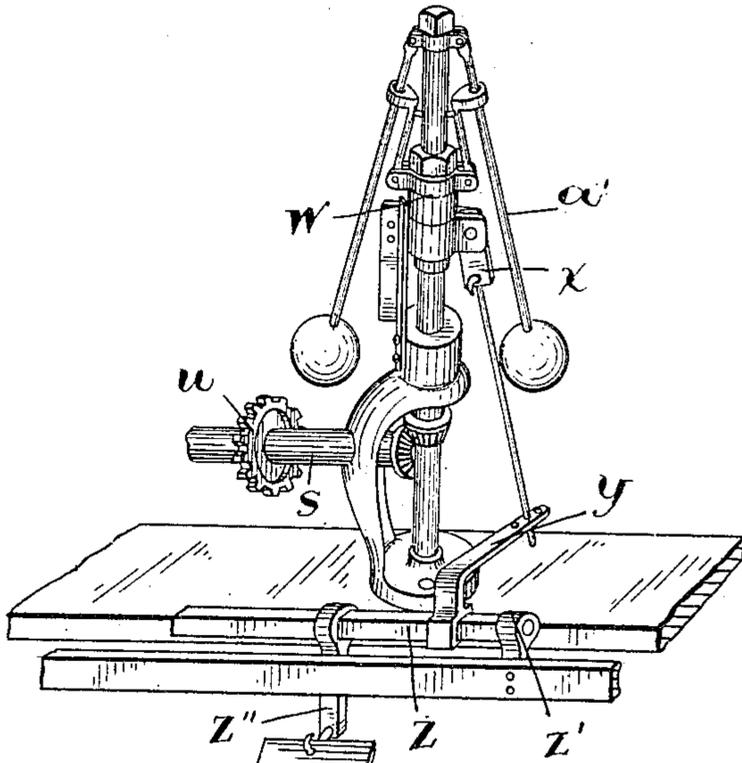


Fig. 2.

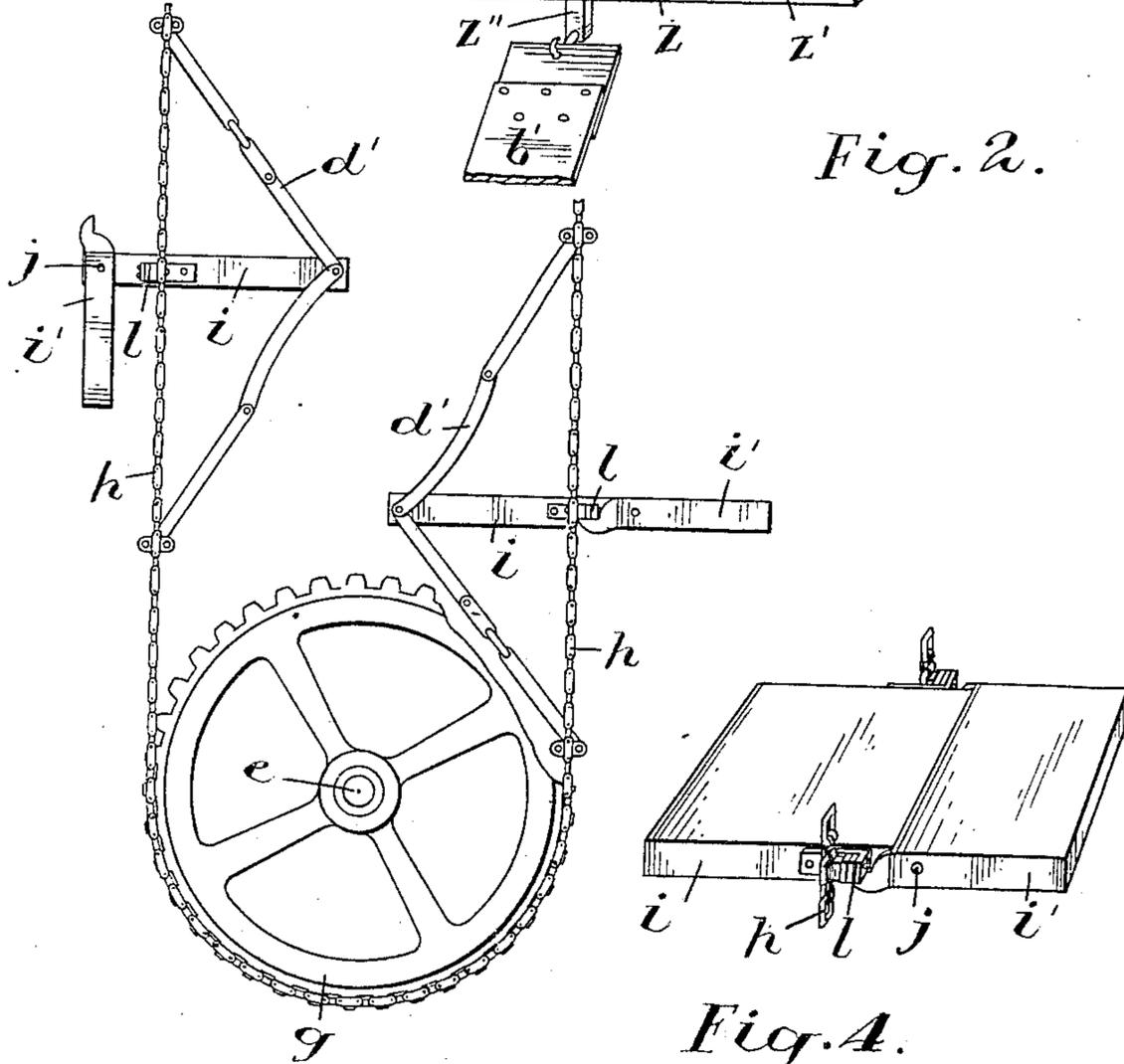


Fig. 3.

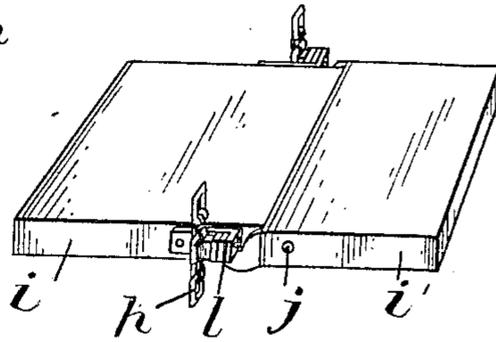


Fig. 4.

Witnesses.

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3 SHEETS—SHEET 3.

Fig. 5.

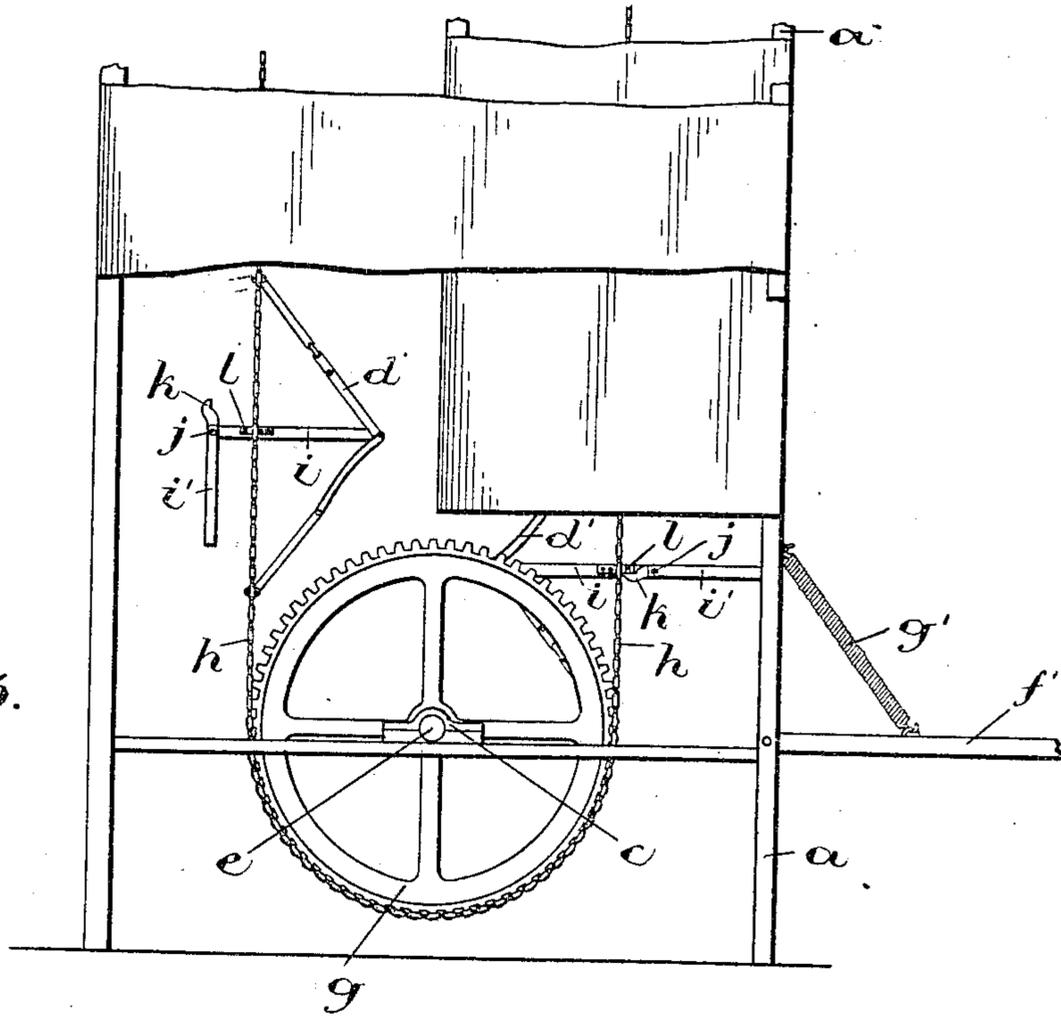
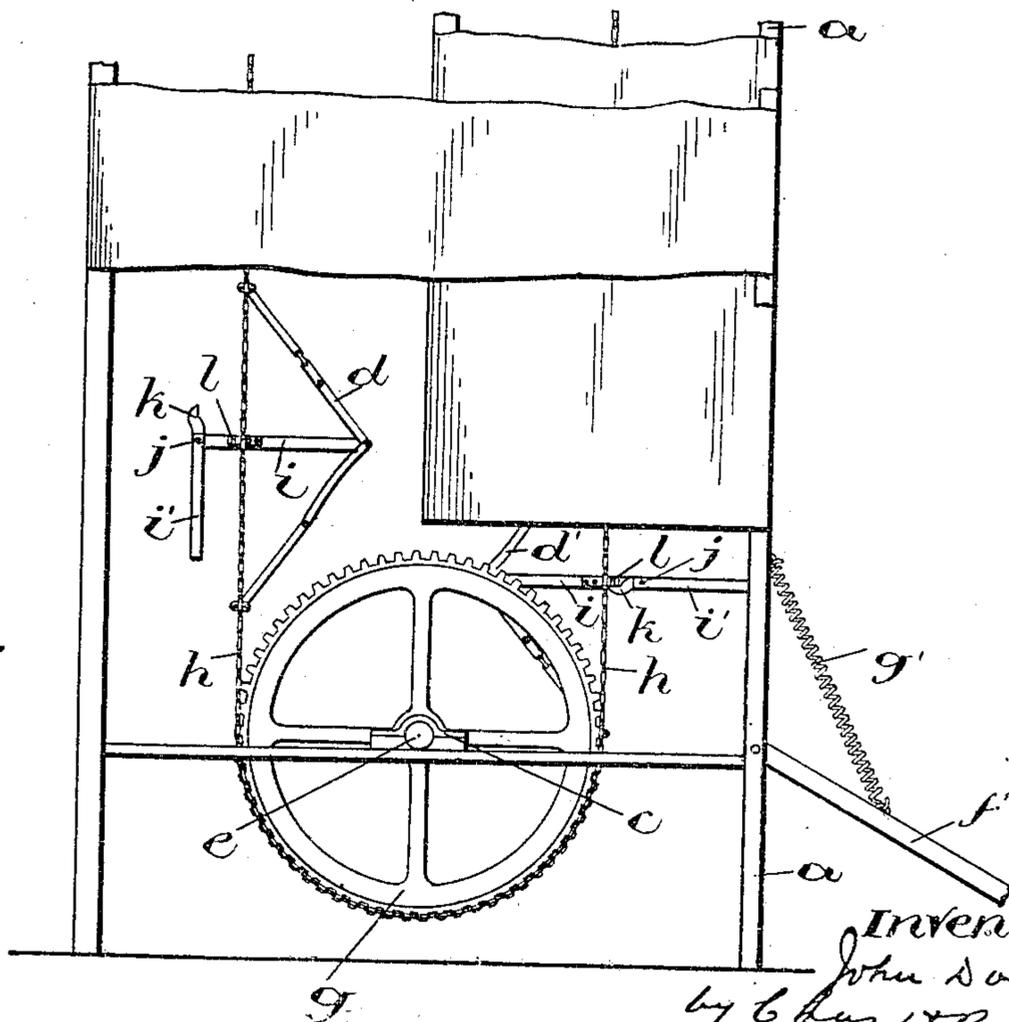


Fig. 6.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN DODDS, OF CALGARY, CANADA.

FIRE-ESCAPE.

No. 825,524.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed September 30, 1905. Serial No. 280,743.

To all whom it may concern:

Be it known that I, JOHN DODDS, of Calgary, in the Province of Alberta and Dominion of Canada, have invented certain new and useful Improvements in Fire-Escapes; and I declare that the following is a full, clear, and exact description of the same.

This invention relates to a fire-escape comprising an elevator-frame, two parallel shafts journaled at opposite ends thereof, sprocket-wheels mounted on said shafts and arranged in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, guide-ways to prevent the swaying of the sprocket-chains as they travel between the sprocket-wheels, platforms carried by the sprocket-chains, a governor to regulate the traveling speed of the chains as the platforms descend with their loads, and a chute hinged to the elevator-frame and provided with counterbalancing means, as hereinafter more fully set forth, and more particularly pointed out in the claims.

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

Figure 1 is a perspective view of the fire-escape. Fig. 2 is a view of the governor and friction-strap for the brake-wheel. Fig. 3 is a side view of one of the sprocket-wheels, a portion of one of the sprocket-chains, and two platforms, showing the descending and ascending positions of the platform-sections as the sprocket-chains travel around the sprocket-wheels. Fig. 4 is a perspective view of one of the platforms, showing the construction of the platform-sections and the means by which they are connected together. Fig. 5 is a side elevation of the lower end of the fire-escape, showing the chute in a horizontal position; and Fig. 6 is a view of the same parts shown in Fig. 5, but showing the chute in an inclined position.

Like letters of reference refer to like parts throughout the specification and drawings.

At the top and bottom of the elevator-frame *a*, which is preferably constructed of metal and located either inside or outside the building-walls, are bearings *b* and *c*, in which are journaled parallel sprocket-wheel shafts *d* and *e*. Mounted on the shafts *d* and *e* are sprocket-wheels *f* and *g*, arranged in oppositely-disposed pairs so that the sprocket-chains *h*, passing around them, may travel in substantially parallel planes.

Carried by the sprocket-chains *h* are platforms consisting of platform-sections *i*, securely fastened to the links of the sprocket-chains *h*, and other platform-sections *i'*, connected to the platform-sections *i* by hinge members *j*.

During the descent of the platforms the platform-sections *i'* assume by gravity a horizontal position in the same plane as the platform-sections *i* and are maintained in that position by the engagement of the arms *k*, connected to them with the resisting-pieces *l*, connected to the platform-sections *i*. When the platforms reach the end of their descent, the platform-sections *i'* assume by gravity and maintain a position at substantially right angles to the platform-sections *i* until the platforms have attained the end of their ascent. During the descent of the platforms the sprocket-chains are caused to travel around the sprocket-wheels and revolve the sprocket-wheel shafts, and this motion is transmitted from the sprocket-wheel shaft *d* to a counter-shaft *o* by sprocket-wheels *p* and *q* and a sprocket-chain *r* and from the counter-shaft *o* to the governor-shaft *s* by similar sprocket-wheels *t* and *u* and sprocket-chain *v*, the relative sizes being such as to greatly increase the speed of the revolution of the governor-shaft over that of the sprocket-wheel shaft *d*.

The revolution of the governor-shaft causes the revolution of the governor-arms *a'*, which as they revolve cause the sliding movement of the governor-head *w*. The sliding governor-head *w* is connected by a link *x* to the crank *y* of the rock-shaft *z*, so that it will operate the rock-shaft during the revolution of the governor-arms *a'*. The rock-shaft *z* has a second crank *z''*, to which is connected the brake-band *b'*, embracing the friction-wheel *c'*, mounted upon and revoluble with the shaft *d*. To brace the platform-sections *i* in their horizontal position as they travel between the sprocket-wheels, jointed stays *d'* are connected to them and to the sprocket-chains above and below the platforms, so that the platform-sections *i* will be prevented from tilting in either direction from their normal or horizontal plane, the jointed stays *d'* automatically extending and contracting when following the curvature of the sprocket-chains as they pass around the sprocket-wheels. The elevator-frame is provided with chain-guides *m* to maintain the sprocket-chains in a fixed path as they descend from

the sprocket-wheels *f* to the sprocket-wheels *g* by preventing them swaying under the load or momentum of the platform.

The fire-escape is placed convenient to the outlets of the building, and when the platforms are loaded they descend by gravity until they reach the end of their descent. The descent of the platforms causes the sprocket-chains to revolve the sprocket-wheels and sprocket-wheel shafts; and during the revolution of the latter motion is transmitted by the sprocket-chain *r* from the sprocket-wheel shaft *d* to the counter-shaft *o*; and from the counter-shaft *o* by the sprocket-chain *v* to the governor-shaft *s*, the relative diameters of the sprocket-wheels being such as to cause the governor-shaft to revolve at a higher rate of speed than the sprocket-wheel shafts and rapidly revolve the governor-arms *a'*. The revolution of the governor-arms *a'* actuates the sliding governor-head *w*, and the governor-head *w* as it rises and falls causes the link *x* to actuate the crank *y* and rock the shaft *z* in its bearings *z'*. The rocking of the shaft *z* causes the crank *z''* to draw the friction-band *b'* against or release it from the rim of the friction-pulley *c'*, and thus control its revolution and that of the sprocket-wheel shaft *d* to regulate the speed of the descent of the platform. When the platforms reach the end of their descent, the platform-sections *i'* move by gravity into a position at substantially right angles to the platform-sections *i*, so that a saving of the depth of space required for the fire-escape can be effected by an amount equal to the width of the platform-sections *i'*. The platform-sections *i'* maintain their vertical position until the platform-sections *i* have passed over the top of the sprocket-wheels *f* and commenced their descent, when they automatically return by gravity to a substantially horizontal position in the same plane as the platform-sections *i*, and in that position they are held by the engagement of the arms with the resisting-pieces.

Hinged to the lower end of the elevator-frame *a* is a chute *f*, normally supported in a substantially horizontal position below the sprocket-chains and platforms by counter-balance-springs *g'* or other counterbalancing means so regulated as to allow the chute to assume an inclined position under the influence of its load, and then automatically return it to its normal position when freed therefrom.

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

60 1. A fire-escape comprising an elevator-frame, parallel shafts journaled therein, sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, plat-
65 forms carried by the sprocket-chains, guide-

ways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, a governor-shaft, a counter-shaft, means for transmitting motion from one of the sprocket-wheel shafts to the counter-shaft and from the counter-shaft to the governor-shaft, a sliding governor-head, a rock-shaft connected with and actuated by the sliding governor-head, a friction-wheel for said last-mentioned sprocket-wheel shaft and a brake-band embracing the friction-wheel and connected with the rock-shaft. 70 75

2. A fire-escape comprising an elevator-frame, parallel shafts journaled therein, sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, platforms carried by the sprocket-chains, guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, 80 85 a governor, motion-transmission means for the governor and one of the sprocket-wheel shafts, a braking mechanism acting directly on said sprocket-wheel shaft actuated by the operation of the governor; a chute 90 hinged to the elevator-frame, and a counterbalancing means to normally support the chute in a substantially horizontal position.

3. A fire-escape comprising an elevator-frame parallel shafts journaled therein, sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, platforms carried by the sprocket-chains, 95 100 guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, motion-transmission means for the governor and one of the sprocket-wheel shafts, a braking mechanism for said sprocket-wheel shaft actuated by the operation of the governor consisting of a friction-pulley mounted upon the sprocket-wheel shaft, a brake-band embracing the friction-pulley positioned by the operation of the governor, a chute hinged to the elevator-frame and a counterbalancing means to normally support the chute in a substantially horizontal position. 105 110

4. A fire-escape comprising an elevator-frame, parallel shafts journaled therein, sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, platforms carried by the sprocket-chains, 115 120 guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, motion-transmission means for the governor, and one of the sprocket-wheel shafts, a braking mechanism for said sprocket-wheel shaft actuated by the operation of the governor consisting of a friction-pulley mounted upon the sprocket-wheel shaft, a friction-band embracing the friction-pulley, a rock-shaft to which the friction-band is connected, a connecting means 125 130

tween the rock-shaft and governor, a chute hinged to the elevator-frame and a counterbalancing means to normally support the chute in a substantially horizontal position.

5 5. A fire-escape comprising an elevator-frame parallel shafts journaled therein, sprocket-wheels mounted on said shafts
alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels,
10 platforms consisting of platform-sections fastened to the sprocket-chains and other platform-sections hinged to the first-mentioned platform-sections, resisting-pieces connected
15 to the first-mentioned platform-sections and arms connected to the last-mentioned platform-sections to engage said resisting-pieces and hold the hinged platform-sections in substantially the same plane as the others during
20 the descent of the platforms, guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, motion-transmission means for the governor and one of the sprocket-wheel shafts
25 and a braking mechanism acting directly on said sprocket-wheel shaft actuated by the operation of the governor.

6. A fire-escape comprising an elevator-frame parallel shafts journaled therein,
30 sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, platforms consisting of platform-sections fastened to the sprocket-chains and other platform-sections hinged to the first-mentioned
35 platform-sections resisting-pieces connected to the first-mentioned platform-sections and arms connected to the last-mentioned platform-sections to engage said resisting-pieces and hold the hinged platform-sections in substantially the same plane as the others during
40 the descent of the platforms, guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, motion-transmission means for the governor and one of the sprocket-wheel shafts
45 a braking mechanism for said sprocket-wheel shaft actuated by the operation of the governor, consisting of a friction-pulley mounted upon the sprocket-wheel shaft and a brake-band embracing the friction-pulley positioned
50 by the operation of the governor.

7. A fire-escape comprising an elevator-frame, parallel shafts journaled therein, sprocket-wheels mounted on said shafts

alined in oppositely-disposed pairs, sprocket- 55 chains traveling around said sprocket-wheels, platforms consisting of platform-sections fastened to the sprocket-chains and other platform-sections hinged to the first-mentioned
60 platform-sections resisting-pieces connected to the first-mentioned platform-sections and arms connected to the last-mentioned platform-section to engage said resisting-pieces and hold the hinged platform-sections in substantially the same plane as the others during
65 the descent of the platforms, guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a governor, motion-transmission means for the governor and one of the sprocket-wheel
70 shafts, a braking mechanism for said sprocket-wheel shaft actuated by the operation of the governor consisting of a friction-pulley mounted upon the sprocket-wheel shaft a friction-band embracing the friction-pulley,
75 a rock-shaft to which the friction-band is connected and a connecting means between the rock-shaft and governor.

8. A fire-escape comprising an elevator-frame parallel shafts journaled therein, 80 sprocket-wheels mounted on said shafts alined in oppositely-disposed pairs, sprocket-chains traveling around said sprocket-wheels, platforms consisting of platform-sections fastened to the sprocket-chains and other platform-sections hinged to the first-mentioned
85 platform-sections resisting-pieces connected to the first-mentioned platform-sections and arms connected to the last-mentioned platform-sections to engage said resisting-pieces
90 and hold the hinged platform-sections in substantially the same plane as the others during the descent of the platforms, guideways to maintain the sprocket-chains in a fixed path during the descent of the platforms, a gov- 95 ernor, motion-transmission means for the governor and one of the sprocket-wheel shafts a braking mechanism acting directly on said sprocket-wheel shaft actuated by the operation of the governor, a chute hinged to the
100 elevator-frame, and a counterbalancing means to normally support the chute in a substantially horizontal position.

Toronto, September 12, A. D. 1905.

JOHN DODDS.

In presence of—

CHAS. H. RICHES,
H. L. TRIMBLE.