(No Model.)

4 Sheets—Sheet 1.

J. HAEGE.

FIRE ESCAPE.

No. 306,149. Patented Oct. 7, 1884.

Fig 1

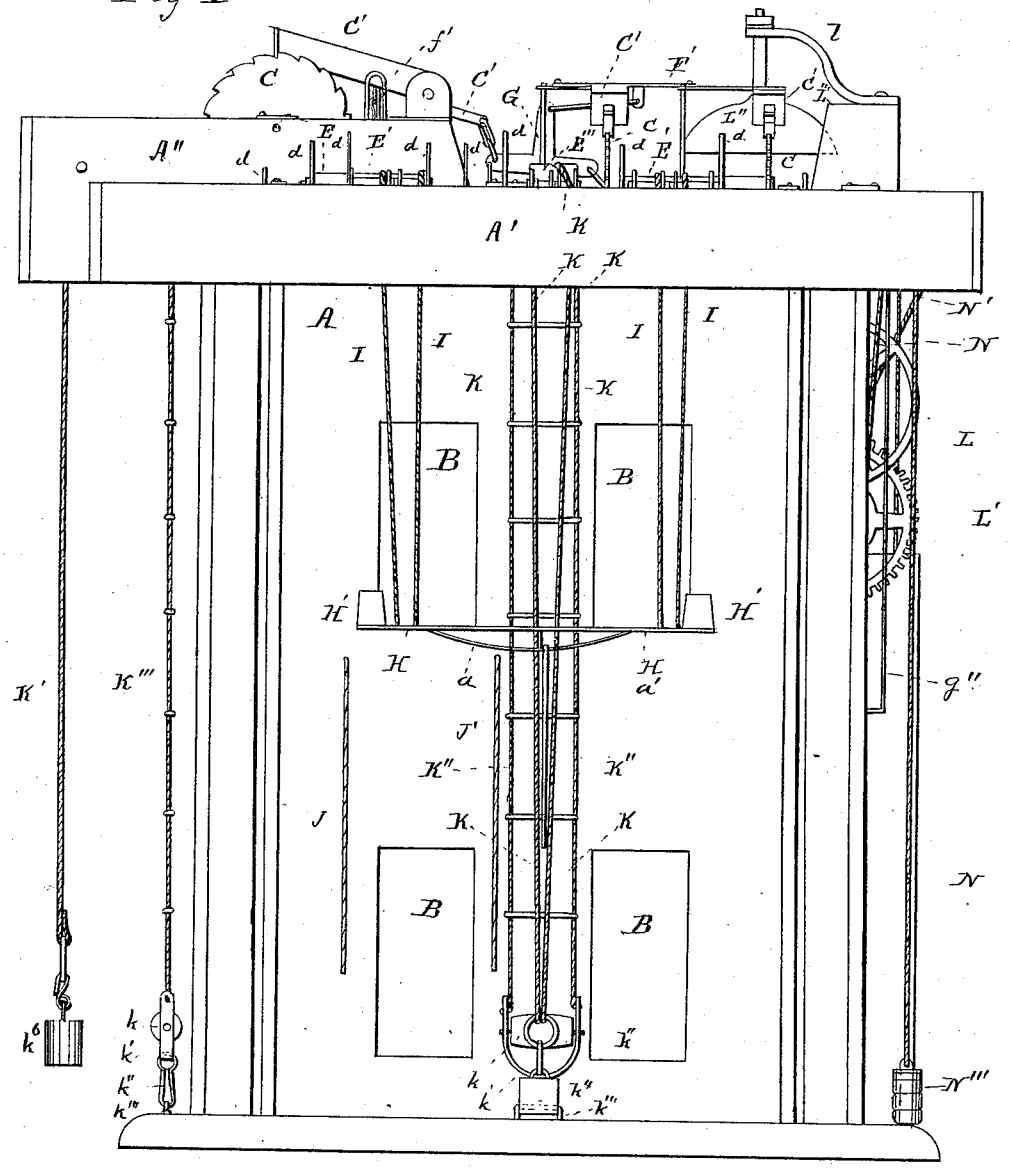

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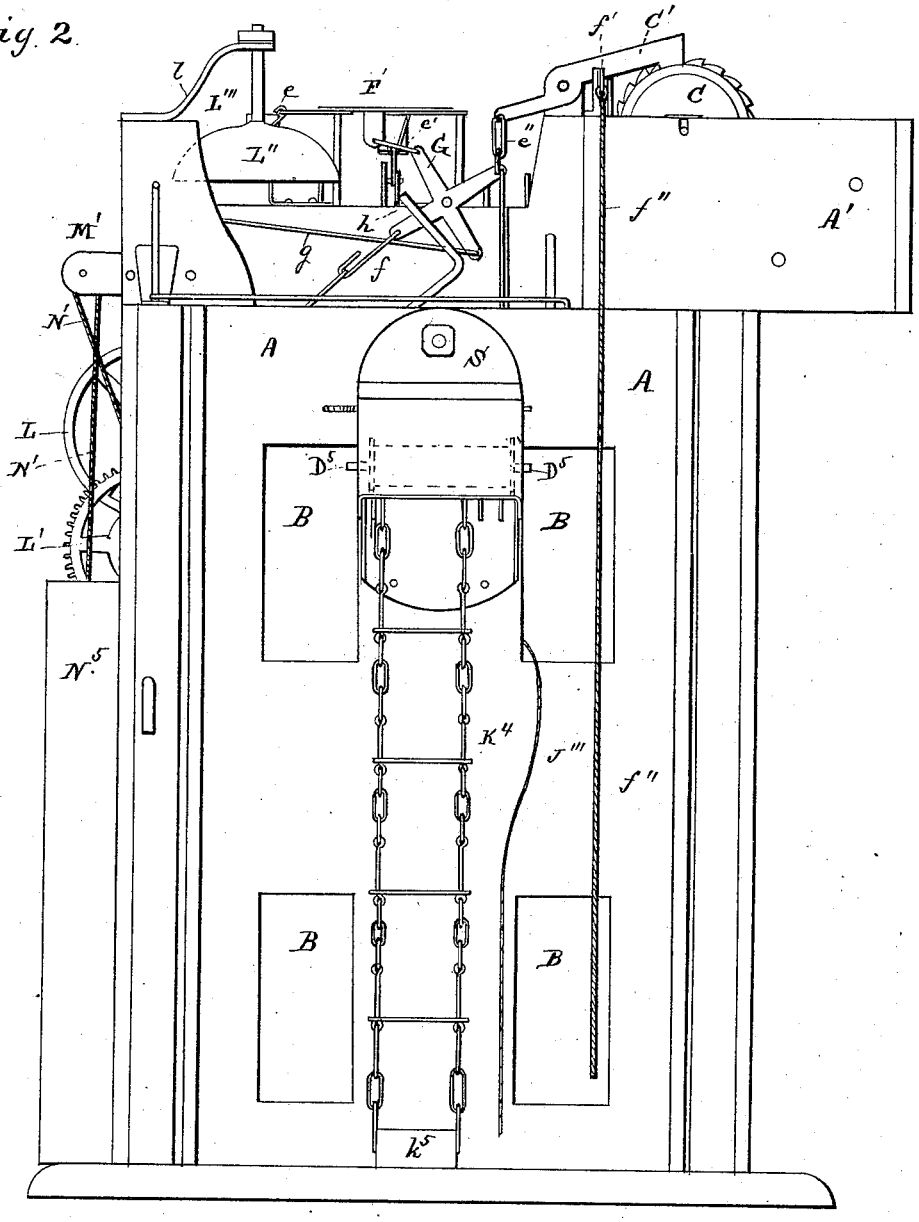
Fig. 2.



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FIRE ESCAPE.

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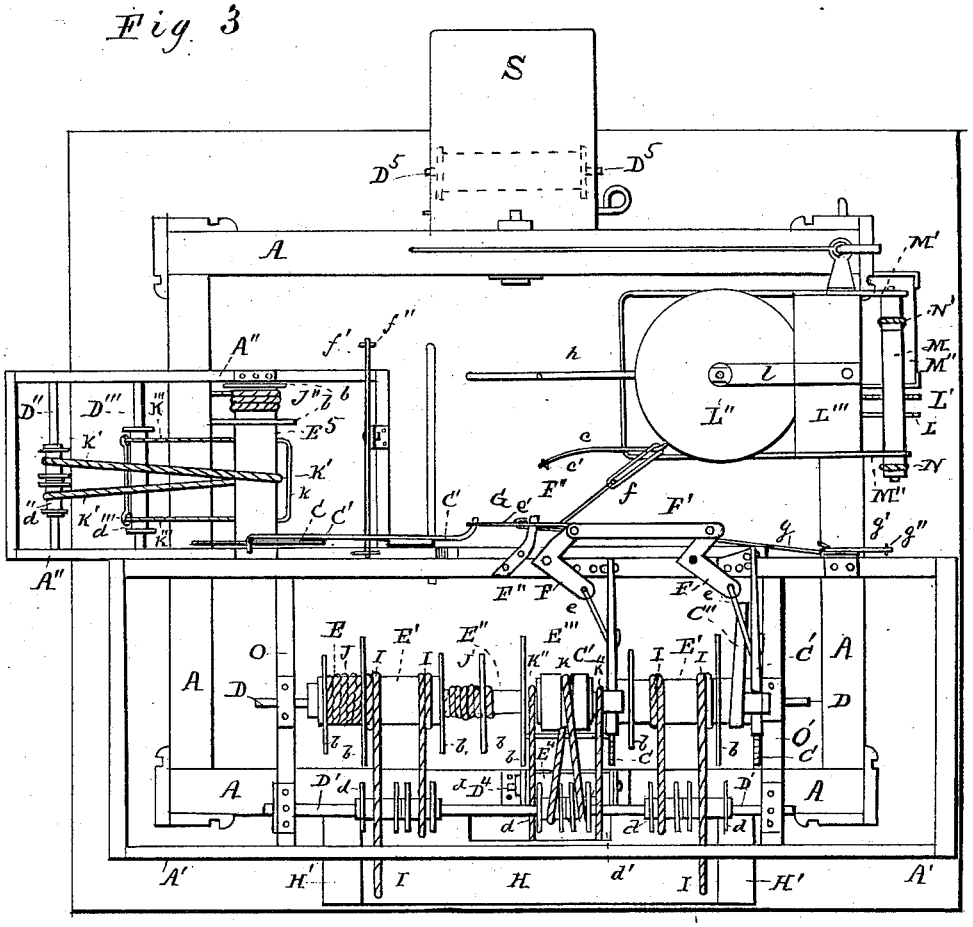
Fig. 3



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FIRE ESCAPE.

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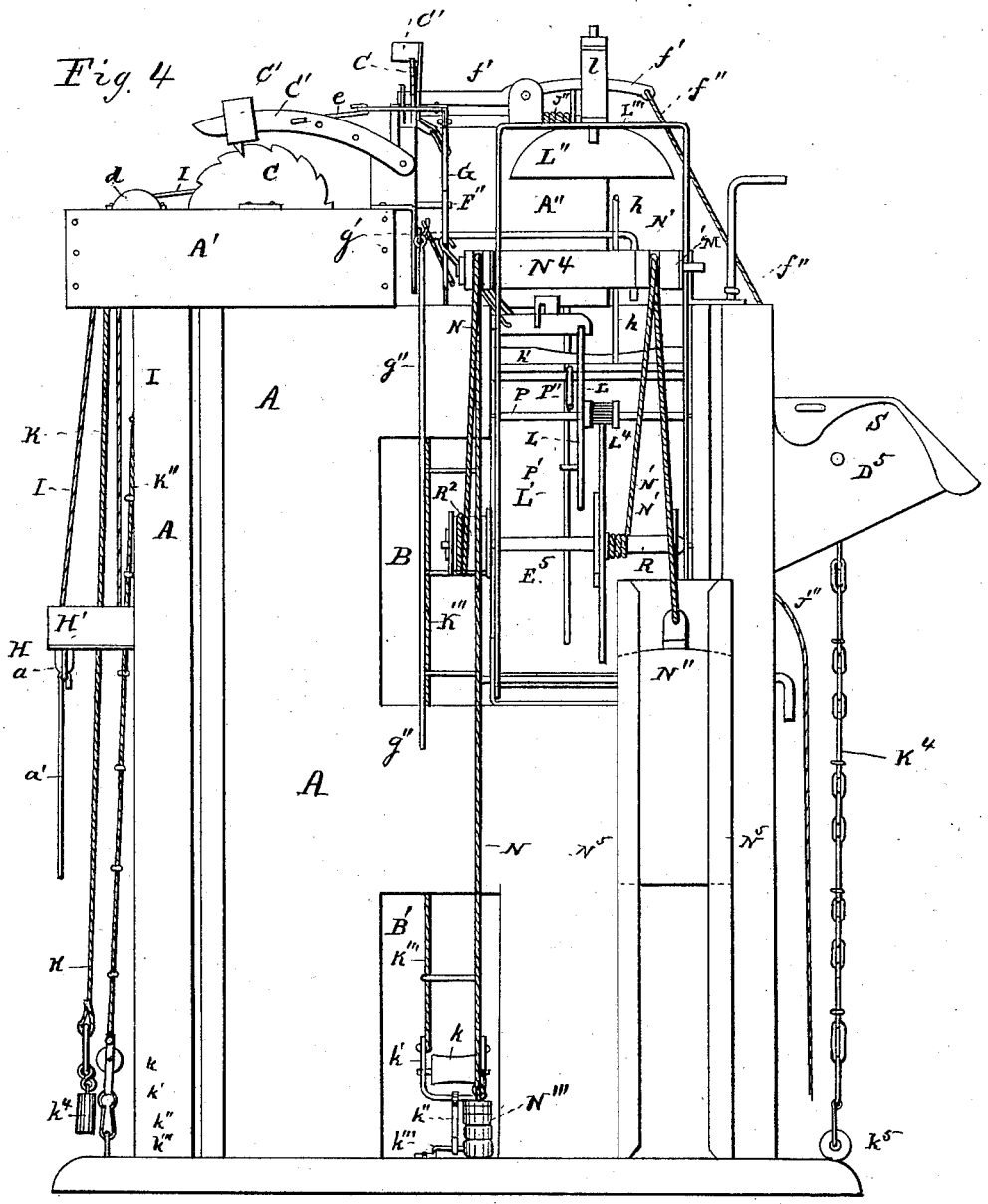
Fig. 4



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UNITED STATES PATENT OFFICE.

JACOB HAEGE, OF GARFIELD, KANSAS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 306,149, dated October 7, 1884.

Application filed May 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, JACOB HAEGE, a citizen of the United States, residing at Garfield, in the county of Pawnee and State of Kansas, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in fire-escapes, the nature of which is to provide the top of a building with a horizontal shaft or shafts upon which are placed suitable windlasses whereon flexible ladders or ropes may be wound and unwound, either singly or simultaneously, as may be desired, and at the same time sound one or more alarms to notify danger to the occupants of the building. These ladders are intended to be placed in such positions that, when lowered, they may be reached from any window in the building and thus afford means of escape to every occupant. These objects are attained by the devices and mechanism illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation taken from one side of a building provided with these devices. Fig. 2 is an elevation taken from the opposite side. Fig. 3 is a plan. Fig. 4 is an end view.

The letter A indicates the walls of the building; A′, a cornice or other suitable device to extend outwardly from the walls A, to support the pulleys or rollers over which the ropes and ladders are to be suspended.

B are the windows.

B′ are the doors of the building.

Each set of windlasses is provided with ratchet-wheels C and pawls C′.

E is a roller.

E′ are windlasses secured to shaft D.

E″ is a hollow roller, revolving upon a shaft, D, and carries a windlass, E‴.

F are bell-crank levers, connected to pawls C′ by means of the links *e e′ e″*, and to each other by the link F′.

F″ is a bracket which supports the metal cross G, and upon the end of which it is pivoted. From one of the arms of this cross extends a link or links, *f*, which connects it with a pawl, *c*, from one end of which depends a cord, *c′*. From the lower arm of the cross G extends a rod, *g*, connecting it with a bell-crank lever, *g′*, from the outer arm of which hangs a cord, *g″*, either on the outside of the building or leading to some room or office on the inside. The pawl *c* engages with a detent in the wheel L, and when a pull is made upon the cord *g″* the striking-hammer *h* of the bell L″ is put in motion and the alarm is thereby sounded. At the same time the pawls C′ are disengaged from the ratchet-wheels C, and the ladders K″ and K‴ and platform H are allowed to descend.

C″ is a brake which, when the pawls C′ are raised, bears against the windlass E′ and checks its speed of rotation. The shaft D has bearings in the timbers O O′.

b are disks secured to the different rollers, pulleys, and windlasses, and serve the purpose to keep the various ladders and ropes in their proper places and thereby prevent their slipping off on either side.

H is a platform having weights H′ on each end, and is stiffened by a truss-rod, *a*, on its lower side, from which is suspended a rod, *a′*, by means of which the platform may be guided or drawn away from the side of the building. This platform is intended to be of sufficient length to extend across several of the windows at the same time, and is suspended at each end by the ropes I, the upper ends of which are secured to the windlasses E′, each of which is firmly attached to the shaft D, and whenever the pawls C′ are disengaged from the ratchet-wheels C the shaft D is allowed to turn, together with the windlasses E and E′, in a direction to lower the platform H, by allowing the ropes I to unwind from their respective windlasses at the same time that the rope J is wound up on the windlass E; and as the rope J is passed through a suitable opening in the wall A of the building, as shown in Fig. 1, a pull upon this rope will rewind the ropes I upon the windlasses E′, and thereby raise the platform H to any desired height, and when so raised the pawls C′, by engaging with the ratchet-wheels C, hold the shaft D and prevent the platform H from descending. The windlass E‴ is firmly secured to the windlass E″, which is a hollow metal tube having on one end and firmly secured thereto a ratchet-wheel, C. The windlasses E″ E‴ and ratchet-

wheel C all revolve together upon the shaft D, which forms the bearing upon which the entire device revolves. A rope, J, is wound upon the windlass E″, and its lower end is passed through a suitable opening in the wall A of the building, as shown in Fig. 1. A pull on this rope serves to rotate the windlasses E″ E‴ and the ratchet-wheel C in a direction to wind up the ropes K and ladder K″, and thereby raise them to any desired height, when the engagement of one of the pawls C′ in the ratchet-wheel C holds the windlasses E″ E‴ in the desired position. The ropes K are intended to furnish a means of descent, and have attached to their lower extremities a weight, k^4, which is intended to cause the ropes to descend to the ground with greater certainty and rapidity.

K′ is a rope for the same purpose, and is provided with a weight, k^6. The ropes I J K′ pass over the tops of rollers d d'', placed a short distance outwardly from the walls A of the building, of which the shaft D′ forms the bearing for rollers d, and the shaft D″ the bearing for roller d''. The flexible ladder K″ in like manner passes over the top of the roller E^4, having a bearing in metal plates D^4, secured to the wall A of the building, and the flexible ladder K‴ passes over the top of roller d''', having a bearing and revolving upon the shaft D‴. The flexible ladders K″ K‴ K^4 have each at their lower extremities weights k k^5 in the form of rollers, which revolve freely and thereby prevent or lessen friction whenever they come in contact with the walls A of the building. The weights or rollers k turn upon shafts secured to the yokes k', which are provided with snap-hooks k'', which, when the ladders are down, are intended to engage with staples k''', by which means the ladders are securely held at the bottom.

The ropes K′ and ladder K‴ are secured to the windlass E^5, which has bearings in the frame or cornice A″, and is provided with a ratchet-wheel, C, and engages with a pawl, C′, which may be disengaged simultaneously with other ratchet-wheels C and pawls C′, already described, by pulling on the rod g'', or, independently, by pulling on the cord f'', which raises the end of the lever f' and thereby lifts the pawl C′ from the under side, and thereby allows the windlass E^5 to revolve and permit the ropes K′ and the ladder K‴ to descend at the same time that the rope J″ is wound up on the end of the windlass E^5, and thus furnishes a suitable means to elevate the ropes K′ and ladder K‴ when it is desired to do so, by pulling the rope J″ continuously in a downward direction until this object is accomplished.

The chain-ladder K^4 is suspended, in the same manner as already described, by being secured to a windlass (shown in dotted lines) attached to a shaft, D^5, having bearings in a metal hood, S, attached to the wall A of the building, and projecting a suitable distance therefrom. One end of this windlass is provided with a rope, J‴, which answers the same purposes as already described for the rope J″.

It is readily seen that shafts similar to shaft D may be suitably connected, and extended entirely around the building, and that any number of flexible ladders may be attached thereto in the manner already described, and that the whole may be caused to descend simultaneously with the ringing of a bell or other means of alarm by pulling a cord or rod, g'', on the outside of the building or in its office, should it be provided with one.

The letter L″ indicates a bell or gong, which is supported by a curved arm, l, attached to a frame, L‴. A wheel, L, having suitable detents, is mounted on shaft P, journaled in bearings in the frame L‴, and is provided with a pinion, L^4, which meshes into the wheel L′, mounted upon a shaft, E^5, having bearings in the frame L‴. This shaft is enlarged at each end, so as to form two windlasses, R and R^2. When the shaft E^5 is turned in one direction the rope N′ is wound up on the windlass R, and as this rope N′ is passed over the top of the roller N^4 and the end carried down and secured to the weight N″, (adapted to slide in a box, N^5,) the descent of this weight causes the shaft E^5 to revolve, together with its wheel L′, together with the pinion L^4 and wheel L, whenever the pawl c is disengaged therewith, and at each revolution of the wheel L a pin, P′, attached thereto, strikes the arm P″, attached to the rock-shaft h', to vibrate and cause the hammer h, also attached to the rock-shaft h', to strike the bell L″ continuously until the weight N″ has reached the ground, and the descent of the weight N″ has thereby caused the rope N to be wound upon the windlass R^2. A continuous pull upon the rope N, which passes over the top of the roller N^4, will cause the rope N′ to be rewound upon its windlass R, and thereby raise the weight N″ to the proper position to cause the alarm to sound whenever the pawl c is disengaged from the detent in wheel L.

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

1. In a fire-escape, the shaft D, having ratchet-wheel C and windlasses E′, in combination with ropes I, platform H, and rope J, substantially as described, and for the purposes set forth.

2. In a fire-escape, the shaft D and the windlasses E″ E‴, adapted to rotate thereon, in combination with ropes K, ladder K″, and rope J, substantially as described, and for the purposes set forth.

3. In a fire-escape, the combination of shaft D, windlasses E′, brake C″, disks b, ropes I, and platform H, having weights H′, truss-rod a, and rod a', with windlass E, and rope J, as described, and for the purposes set forth.

4. In a fire-escape, the shaft D, the windlasses E″ E‴, the ratchet-wheel C, the ropes K, having weight k^4, the ladder K″, having roller k, yoke k', snap-hook k'', and staple k''', in com-

bination with the rope J′, substantially as described, and for the purposes set forth.

5. In a fire-escape, the shaft D and the windlasses E E′, having disks *b*, in combination with ropes I I, shaft D′, pulleys *d*, and platform H, as described, and for the purposes set forth.

6. In a fire-escape, the shaft D, the windlasses E″ E‴, the rope K, and the ladder K″, in combination with rollers *d* and E⁴, walls A, and timbers O O′, substantially as described, and for the purposes set forth.

7. In a fire-escape, the frame A″, the shafts D″ D‴, having pulleys *d*″ *d*‴, and the windlass E⁵, in combination with ropes K′, ladder K‴, and rope J″, substantially as described, and for the purposes set forth.

8. In a fire-escape, the windlass E⁵, having ratchet-wheel C, in combination with pawl C′ and lever *f*′, provided with cord *f*″, as described, and for the purposes set forth.

9. In a fire-escape, the metal hood S, in combination with shaft D⁵, windlass thereon, chain-ladder K⁴, and rope J‴, as described, and for the purposes set forth.

10. In a fire-escape, the means shown and described whereby the ladder and ropes may be dropped to the ground and an alarm sounded simultaneously.

11. In a fire-escape, the combination of shaft D, windlasses E E′ E″ E‴, and ratchet-wheels C, and of windlass E⁵, bell-crank levers F, pawls C′, connecting-links F′ *e e*′ *e*″ *f*, pawl *c*, and wheel L, with cross G, rod *g*, bell-crank lever *g*′, and cord *g*″.

12. In a fire-escape, the bell L″ and the arm *l*, in combination with the frame L‴, as described, and for the purposes set forth.

13. In a fire-escape, the frame L‴, the lugs M′, and the roller N⁴, in combination with ropes N N′, shaft E⁵, wheel L′, pinion L⁴, wheel L, pin P′, arm P″, rock-shaft *h*′, hammer *h*, and weight N″, as described, and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB HAEGE.

Witnesses:

PHILLIP HAEGE,

A. F. MECKFESSEL.