

(No Model.)

D. C. PIERCE.

FIRE ESCAPE.

No. 293,352.

Patented Feb. 12, 1884.

Fig. 1.

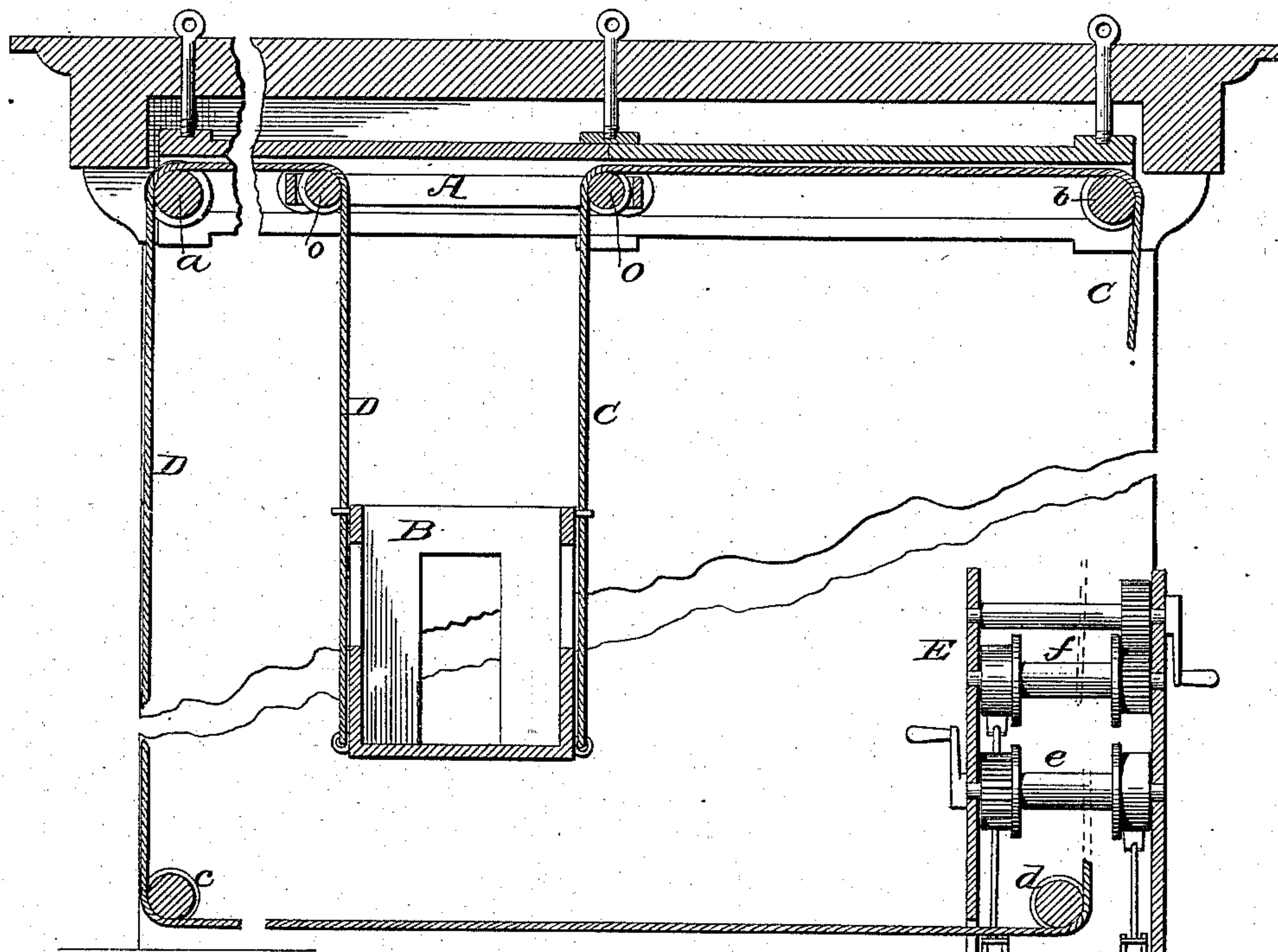
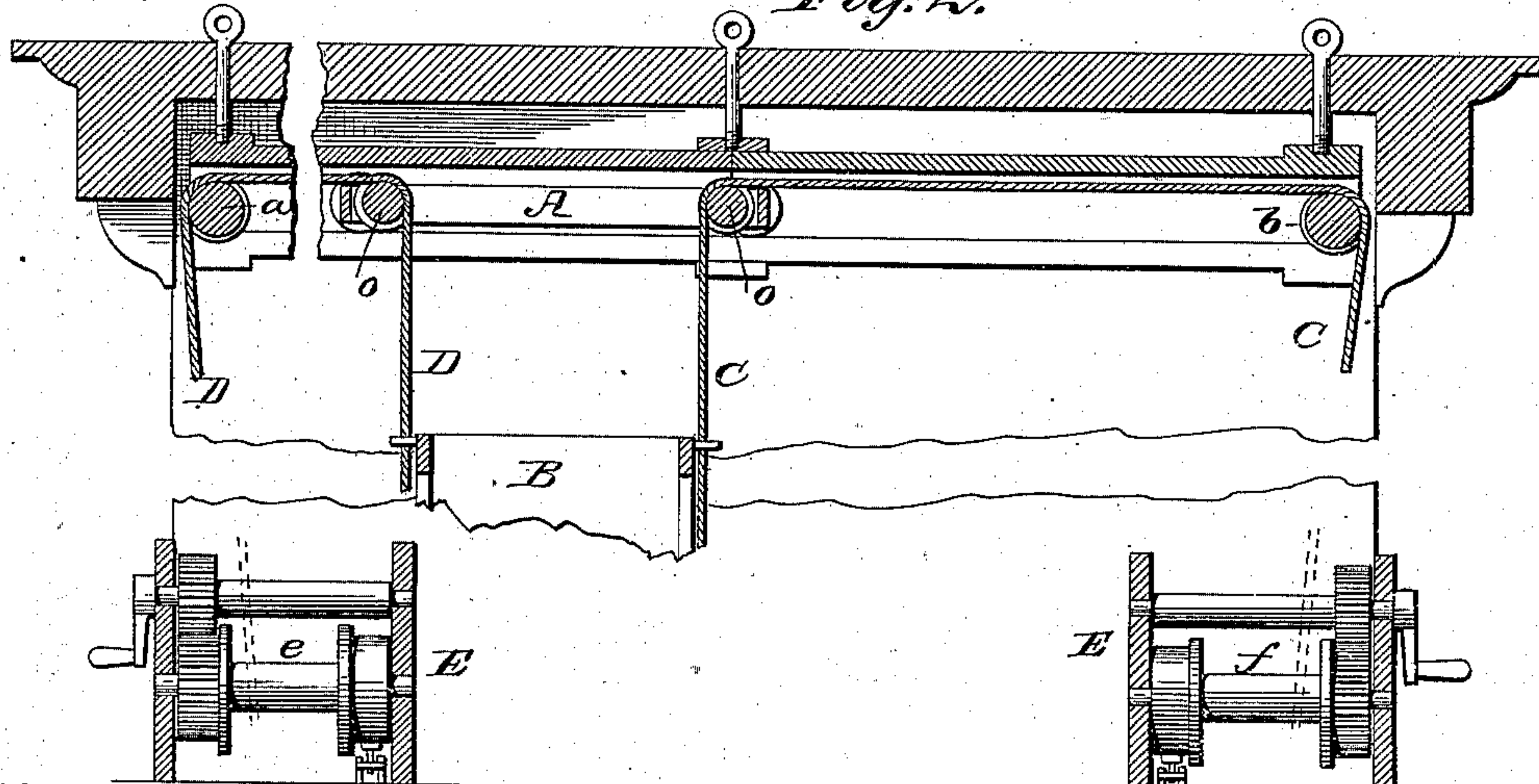


Fig. 2.



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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 293,352, dated February 12, 1884.

Application filed May 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, DENISON C. PIERCE, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Fire-Escapes, of which the following is a specification.

My present invention relates to fire-escapes; and it consists in a novel arrangement of a cab and apparatus for operating the same, as hereinafter more fully set forth.

Figure 1 is a front elevation, showing the apparatus as applied to a building; and Fig. 2 is a similar view, showing a modification of the same.

The present invention is designed as an improvement upon the fire-escape for which I filed an application for patent on the 13th day of April, 1883. In that apparatus the cab or basket for lowering persons from the building was suspended by a single rope, while still another rope was used to move the cab laterally in one direction along the side of the building, as is necessary, to enable it to be brought in front of all the different windows of the building. In the present invention the same arrangement of rail or track is used for the carriage to travel on, and the carriage A is made in the same general style, the only difference being that in the former a single sheave was arranged at the center for the single rope that held the cab, while in this case the carriage or traveler is provided with two sheaves, *o o*—one at each end—for the two ropes C D, which support the cab, to pass over, as shown in Figs. 1 and 2, the carriage A being as long as the cab B is wide, or a little more, so that the suspending-cords C D will pass from their sheaves *o* straight down alongside of the cab B, and be connected thereto at its top and bottom, as shown, thus making their attachment to the cab secure, and at the same time holding the latter upright and preventing it from tipping. When the cab or basket is suspended by a single cord, as in my former case, it is liable to swing or sway about, thus rendering it more difficult to bring it to the exact point desired, as well as making it more difficult for persons to get into it, both of which consume time, which at such a critical moment is of the utmost importance. In addition to this, this swaying or swinging movement of the cab or

basket operates to deter timid persons, especially women and children, from entering it, or at least to so delay their doing so as to consume valuable time, which may prevent the saving of others, if not themselves. Hence in my present invention I suspend the cab B by two ropes, C D, as shown, the rope C passing up over a sheave, *o*, at one end of the traveling carriage A, thence laterally along the face of the wall and over a sheave, *b*, from which it passes down to a windlass, E, located at the ground, as shown. In this case the windlass is provided with two winding-drums, *f* and *e*, the rope C being secured to the upper one, *f*, as shown in Fig. 1. The other rope, D, which is secured to the opposite side of the cab in like manner, passes up over a sheave, *o*, at the opposite end of the carriage A; thence laterally in the opposite direction to and over a sheave, *a*, at the opposite corner of the building; thence down and under a sheave, *c*, at or near the ground, and from there along the front of the building to and under another sheave, *d*, from which it passes to the lower drum, *e*, of the windlass E, to which it is secured, and upon which it can be wound at pleasure. With the parts thus arranged it will be seen that by winding both ropes C D on their respective drums *e f* simultaneously, the cab B will be hoisted straight up without being moved laterally, and that by unwinding them it will be lowered directly down. If either one alone be wound up, then the cab will be both raised and moved laterally at the same time, and if one alone be unwound, the cab will be lowered and moved laterally in the opposite direction. To illustrate this, suppose the rope C be wound on its drum *f*, the drawing on said rope will tend to raise the cab; but as the raising of it by lifting on that side alone will tend to slacken the tension on the rope D, the result will be that the carriage A will be drawn along toward the sheave *b*, and thereby take up that portion of rope D which is between the carriage and the cab, thus raising the cab at the same time that it is being moved laterally, the resultant of these two movements or forces being to cause the cab to move in a diagonal direction upward and sidewise along the face of the wall, the unwinding of the rope C of course resulting in a reverse movement. In like man-

ner the winding and unwinding of the rope D will produce precisely the same effect, only that the carriage and cab will be moved toward the opposite side of the building.

5 It will readily be seen that as either or both of the drums *e f* may be operated at will, the cab may be moved up or down and in either direction laterally, according as one or the other or both of the drums may be operated, and that by means of these two drums the cab
10 may be made to travel to any and all points upon the face of the wall, and thus be brought in front of any window or opening on the entire front of the building.

15 While I have shown a simple form of windlass merely to illustrate the principle and mode of operation, I propose to use the style of windlass shown in my former application hereinbefore referred to, in which multiplying-gear and
20 brakes are used. I also contemplate the use of movable intermediate gear, by which the two windlasses *e* and *f* may be thrown into connection, so that both may be operated simultaneously by the same power, and also to use
25 reversing-gear, so that the two windlasses may be made to rotate in the same or in opposite directions at will, for the purpose of more readily producing the various movements of the cab, as above set forth; but as these various
30 details of the windlass mechanism will be readily understood by machinists, it is unnecessary to further describe them at this time.

In Fig. 2 I have shown a slight modification of the plan shown in Fig. 1, the only difference
35 being that, instead of placing the two winding-drums *e* and *f* in one frame at one corner of the building, I have shown each placed in a separate frame, and located at opposite sides of the building, the result and mode of operation being the same in effect. By so doing the
40 sheave *c* at the lower left-hand corner of Fig. 1, and the extension of the rope D across the building at its base, together with the sheave *d*, may be dispensed with. It is obvious that
45 when thus arranged the intermediate connecting and reversing gear above referred to cannot be conveniently used, though it can be done by extending one or more shafts across from one to the other drum and providing the
50 proper gear, clutches, &c.; but as this would render the apparatus complicated and belikely to cause confusion and delay, I do not consider it desirable.

It is obvious that if the rope be extended
55 across the front of the building, as shown in Fig. 1, it may be run through a pipe or pas-

sage-way under the pavement, to keep it out of the way and protect it from injury; or, if there be an area or basement in front of the building, as is often the case in cities, it may
60 be run across through it. So, too, the windlasses may be located in an area or basement, if desired, or at whatever point is most convenient, it only being necessary to so locate sheaves as to carry the ropes to the windlasses
65 wherever located.

It will of course be understood that the ropes, carriage, cab, and all parts of the apparatus are to be made of metal, or otherwise rendered
70 fire-proof.

By these means I am enabled to produce an exceedingly simple and efficient fire-escape, and one in which the cab or basket is prevented from swaying or swinging about, and is
75 made to move much more steadily and uniform, thereby rendering it far more available for women and children or timid persons, and also saving valuable time in operating it.

Having thus fully described my invention, what I claim is—
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1. The combination, in a fire-escape, of a cab suspended by cables or ropes at its two opposite sides, a traveling carriage carrying sheaves, over which said ropes pass, and two pulleys
85 located one at each corner of the building in line with the traveling carriage, said ropes being led to winding-drums below, all arranged to operate substantially as described, whereby the cab, by means of said ropes, can be both
90 elevated, lowered, and also moved laterally, as set forth.

2. In combination with the traveling carriage A, the cab B, with the ropes C D, sheaves *a b c d*, and winding-drums *e f*, all arranged to
95 operate substantially as and for the purpose set forth.

3. The combination, in a fire-escape, of a traveling carriage, A, provided with the two sheaves *o o*, and the cab B, having the two
100 ropes C D connected thereto, and passing up over sheaves in the traveling carriage, and from thence in opposite directions around the pulleys *a d* at the opposite corners of the building, and from thence to the two winding-drums, whereby the ropes which sustain the cab can
105 be made to move the same both vertically and laterally, as herein shown and described.

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