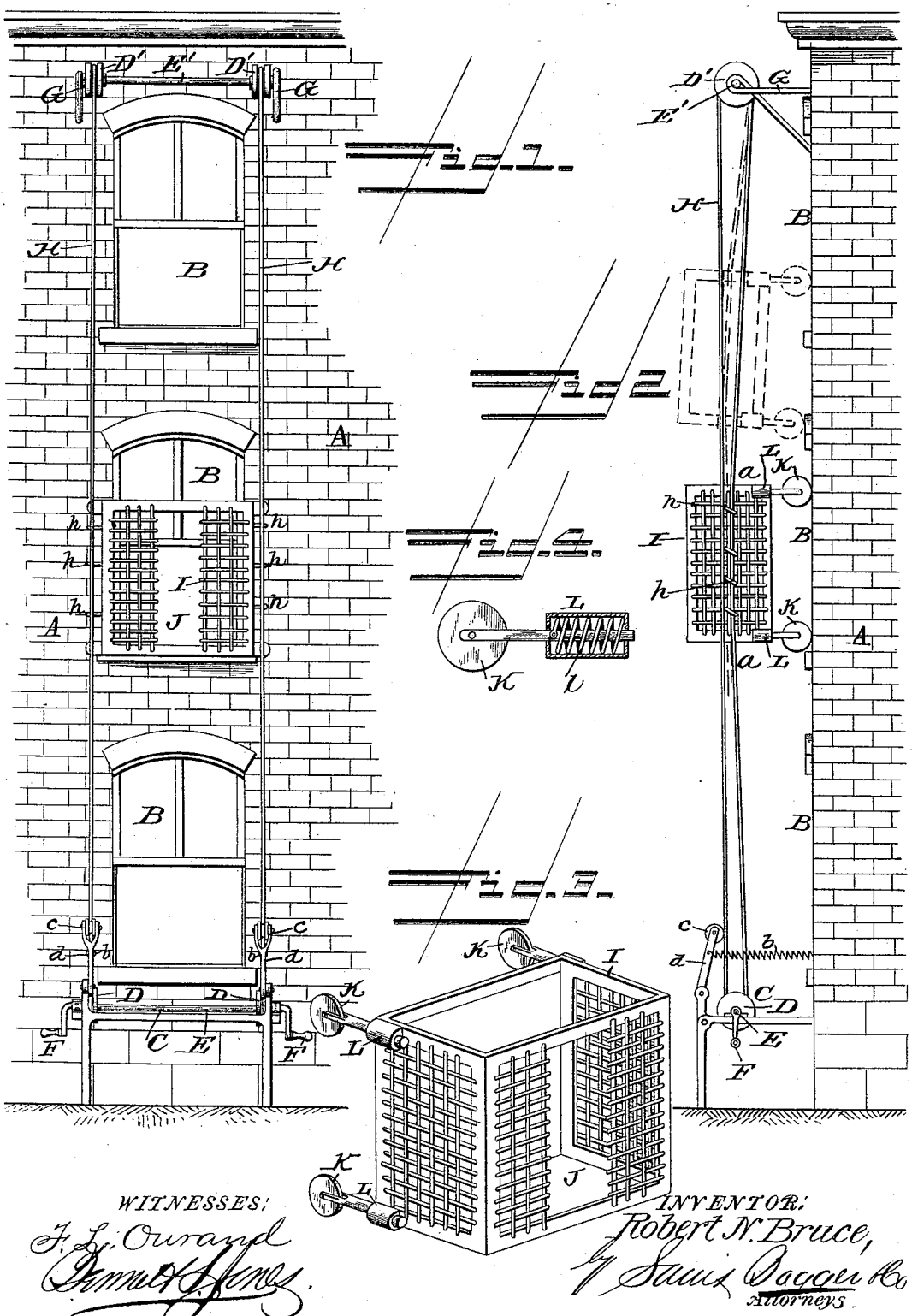
(No Model.)

R. N. BRUCE.

FIRE ESCAPE.

No. 489,368. Patented Jan. 3, 1893.



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UNITED STATES PATENT OFFICE.

ROBERT N. BRUCE, OF SPERRYVILLE, VIRGINIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 489,368, dated January 3, 1893.

Application filed July 2, 1892. Serial No. 438,811. (No model.)

To all whom it may concern:

Be it known that I, ROBERT N. BRUCE, a citizen of the United States, and a resident of Sperryville, in the county of Rappahannock and State of Virginia, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front elevation of part of a building equipped with my fire escape; Fig. 2 is a side elevation of the same, showing, in dotted lines, how the traveling cage clears obstructions on the wall in hoisting it up or down; Fig. 3 is a perspective view of the cage with its yielding wheels; and Fig. 4 is a detail view of one of these yielding clearer-wheels with its spring attachment.

Like letters of reference denote corresponding parts in all the figures.

This invention relates to that type of fire escapes in which a cage is connected with wire ropes and a windlass, so that it may be hoisted up and down in front of a vertical row of windows through which the inmates of the burning building may escape into the cage when the same is opposite, and thus be lowered safely to the ground; and my improvement consists in the novel construction and combination of certain parts of the device as will be hereinafter more fully described and claimed.

Referring to the drawings, the letter A designates the front wall of a three story building provided with my fire escape, the windows being shown at B. On the ground, in alignment with the vertical row of windows, is located, close up against the wall, a windlass C, comprising the two grooved end-sheaves D, their connecting shaft E and crank or handle, F, at one or both ends of the shaft. This windlass may be provided with any desired form of brake mechanism; but as the brake forms no part of my invention, I have not shown it in the drawings.

Above the uppermost windows B, and in alignment with the whole row of windows and the windlass below, is located a shaft E′, having grooved end-sheaves D′ D′ corresponding to and in vertical alignment with the windlass below; shaft E′ being journaled in and between brackets, G G, which are securely and permanently fastened in the wall.

Around the sheaves D D′ are passed the wire hoisting ropes H H, one on each side, which carry the cage I. The latter, which is open on the side facing the wall and provided with an opening, J, on the opposite or outer side, is fastened to and between the hoisting ropes H H by hooks or staples, *h*, in such a manner that that part of the rope where it is fastened to the cage will be set back a little from the wall, as shown at *a* in Fig. 2; in other words, that part of each of the ropes H which is nearest to the wall is not parallel to the wall, as is the outer side of the same rope, but slants, from the top and bottom sheaves D′ D, out from the wall to the point of attachment to the cage. This is an important feature of my invention, and is for the purpose of drawing or pulling by the tension of the ropes, the cage I close up against the wall of the building. In order that this tension may be at all times maintained, even if the ropes should slacken from any cause, I provide the windlass C at each end with an idle-wheel *c*, the pivoted arm *d* of which may be drawn up against the rope by means of a spring *b*, thereby taking up slack and effectually providing for the requisite tension.

On the inner side of the cage (*i. e.* the side facing the building), at top and bottom, are placed the clearer-wheels K, one in each inner corner of the cage. These wheels are journaled in yielding bearings, L, as illustrated more clearly in the detail view, Fig. 4, the coiled spring *l* permitting the wheel to be pushed back, but only in case of excessive pressure against the wheels. In other words, the spring *l* is made strong and stout enough to maintain the wheel in its normal position under all ordinary circumstances. The function of these wheels K on the inner side of the cage facing the building is to enable the cage to travel over window caps and cornices, or similar objects on the wall. As will be seen by reference to Fig. 2, when, in hoisting the cage, its top part meets an obstruction, the wheels will carry it over it, and as, after having passed over the obstruction, the cage

is again drawn up close against the smooth part of the wall between the windows, the wheel-spring *l* will prevent any sudden shock or jar. These wheels also prevent undue friction of the cage against the wall as it travels up or down.

From the foregoing description, taken in connection with the drawings, the operation of my fire-escape will readily be understood without further explanation. Under ordinary circumstances, the cage may be located either at the top or bottom; or it may be placed opposite to one of the windows, so as to form a sort of balcony; the cage being prevented from dropping by fastening the hoisting ropes at their lower ends. In case of fire, these ropes are loosened, and by turning the crank of the windlass, the cage may be placed opposite to any one of the windows in the row. After the persons who are to be rescued have entered the cage, it is lowered to the ground either by slowly turning the crank, or else applying its brake so that it, with its load, will drop down easily and without any sudden shock or jar. The cage is raised and lowered as often as necessary until all the occupants of the burning building have been rescued; and as the cage and ropes with their appurtenances are made of steel or iron, they cannot burn or receive injury from flames bursting through the windows.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States;

The combination of the windlass C, upper shaft E′ having grooved end-sheaves D′, cage I having clearer-wheels K, and hoisting ropes H attached to the sides of the cage so as to draw it, by their tension, close up against the wall; substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ROBERT N. BRUCE.

Witnesses:

ROBERT O. BRUCE,

BENNETT S. JONES.