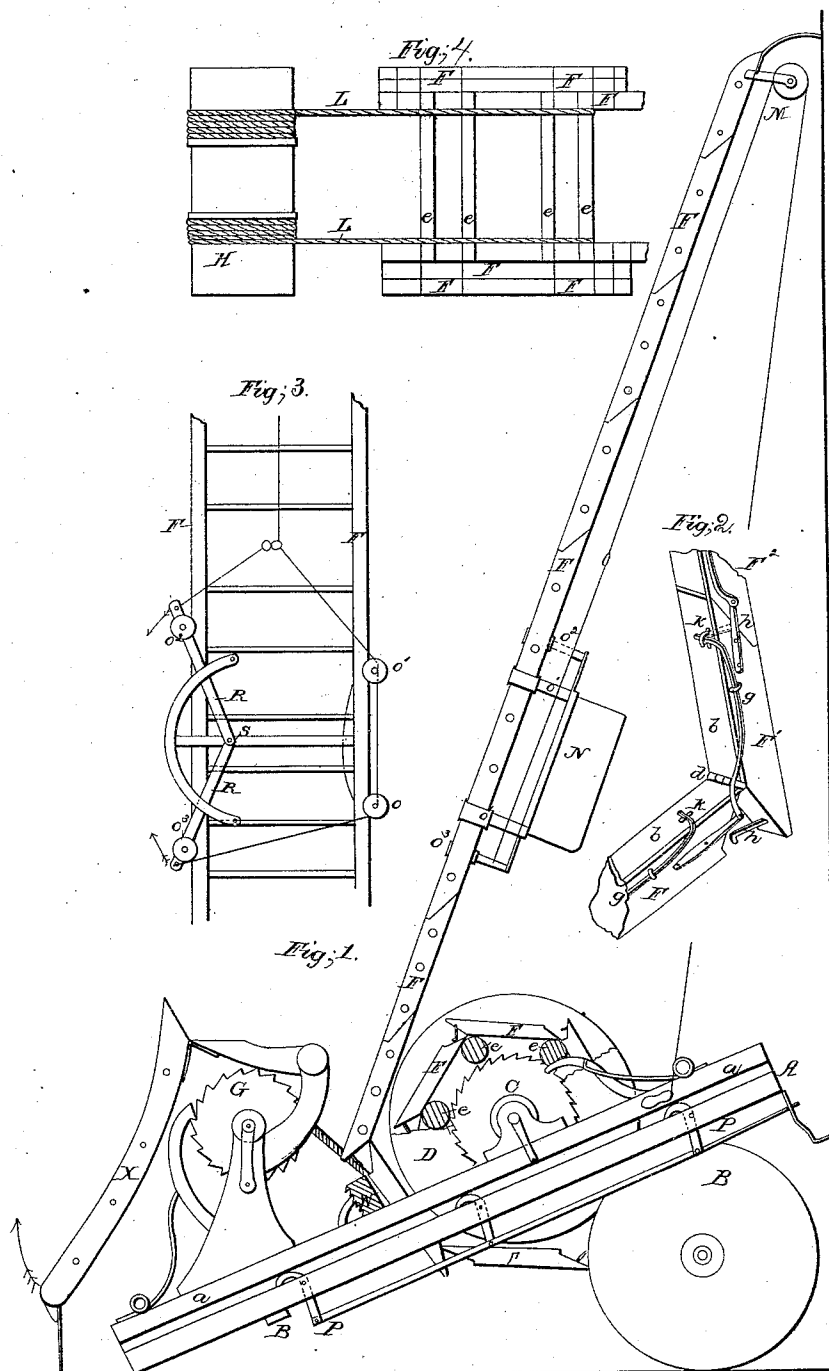


W. Breitenstein.

Fire Escape.

No 30,291.

Patented Oct. 9, 1860.



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UNITED STATES PATENT OFFICE.

WILLIAM BREITENSTEIN, OF NEW YORK, N. Y.

FIRE-ESCAPE.

Specification of Letters Patent No. 30,291, dated October 9, 1860.

To all whom it may concern:

Be it known that I, WILLIAM BREITENSTEIN, of the city, county, and State of New York, have invented a new and Improved Fire-Escape; and I do hereby declare the following to be a full and exact description thereof, reference being had to the annexed drawing, making part of this specification, in which—

10 Figure 1 is a side view of the fire-escape, when ready for use; Fig. 2 is a perspective view representing the construction of the ladder and especially the manner of joining the various parts of the same; Fig. 3 is a
15 back view of the escape box; Fig. 4 is a horizontal view of the ladder when wound around its drum or reel.

The nature of my invention consists in constructing a fire escape in which the ladder of the required length is wound around a reel in such a manner that it may be elevated and made rigid similar to the usual ladders used for that purpose, and it also consists in constructing an escape box and in
20 so connecting the same with the ladder that it may slide up or down on one side of the ladder leaving the other side of the said ladder free for the ascension or descension of persons.

30 To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

In the annexed drawing, in which the same letters of reference mark the same parts in all the figures, A represents the carriage-frame on wheels B. When the machine is transported to or from its place of destination the frame A has a horizontal position and the other pair of wheels (not shown on the drawing) is placed under the said frame at B'.
35

C represents the reel-ratchet, D, D the cheeks of the reel, one of which is represented in Fig. 1, as being partially broken off in
40 order to show the cylinders or staves *e, e, e* on which the parts of the ladder F F, F are wound.

G represents the windlass ratchet attached to the windlass H, on which two stout ropes
50 L, L are fastened.

P, P represent an arrangement of levers and screws by which the frame A may be adjusted to an uneven ground by elevating or depressing the upper half *a* of the said frame.
55

The manner of joining the side pieces of

the ladder is illustrated in Fig. 2. The back of each is provided with a metal plate *b* fastened to the wood and joined to the metal plate of the next section of the ladder by a
60 hinge *d*. On the side of the section F a metal clasp *f* is attached reaching over the joint of the ladder when closed but not fastened to the other section F', but hinged to a metal wire or narrow plate *g* which runs
65 close to the side of the part F' and is then turned to the back plate *b*, where through a slot *h* it may be hooked and fastened by a hook *h* which is attached to the joining surface of F'. Thus when the joint is closed
70 the sections F and F' form one straight rigid piece, and the following sections will also remain closed, as the wires *g* of the following sections will be held fast by their respective hooks. The only thing required to keep the
75 whole ladder in one straight rigid line like any other ladder is to fasten the hook of the lowest section by inserting a pin or wedge in the hold of the same.

N represents the escape box attached by a rope to a pulley M on the top of the ladder and by four rollers *o, o', o'', o'''* to the sides of the ladder. Two of these rollers *o, o'* are fixed immediately to the back of the box, while the two others are attached to two
80 levers R and R' pivoting on a point S in the back of the box, by which they may be turned in the direction indicated by the arches in Fig. 3; and if so turned, the hold of these rollers on the sides of the ladder
85 will be loosened and thus the box may be removed from the same. When the box is hanging on the pulley its mere weight will be sufficient to keep the rollers tight to the ladder.
90

The ladder gradually diminishes in breadth from the bottom to the top in such a manner that in folding the ladder on the reel rods or staves *e, e, e* the projecting side pieces F F of the ladder may be laid near to
100 each other without being laid directly over each other as is particularly shown in Fig. 4. From the same figure the manner of fastening the ladder, when folded on the reel and during the winding up and unfolding of the same, will be apparent. Two ropes
105 L L being fastened to the windlass H, and the reel D; the reel rotates and receives the several parts of the ladder, the windlass turns in similar manner and winds the two ropes over the steps of the ladder (which are
110 not shown in Fig. 4, but are indicated in

Figs. 1 and 3) thereby keeping the same tight on the reel. When the ladder is to be elevated (as in Fig. 1,) the reel is turned in the reverse direction and the ropes will be again wound on the windlass H.

Fig. 1, representing the ladder partially elevated and ready for use, shows that the escape box N may be used on one side of the ladder for hoisting up or down persons or property, while the other side of the ladder may be used in the usual manner by persons ascending or descending on the same. When ready for use, the base block W, capable of being raised or lowered by any of the usual means for that purpose, is elevated so as to form a secure footing for the lower members of the base; and to afford additional stability to the ladder, the small ladder X attached to the standard of the windlass H and its ratchet wheel G and turnable on an arm of the said standard is turned upward and made to lean against the principal ladder.

By the construction herein described I am enabled to carry a ladder of any length required to reach the highest walls, on a carriage of moderate size with very little power and great speed to its place of destination, where two workmen will be sufficient to put the machine in its proper position, to elevate the ladder to any point required, to adjust the escape box and put the whole apparatus in working order in a very short period of

time, and to use the same as a very efficient fire escape for the saving of lives and property.

The catches to the ratchet wheels and their springs, the steps of the ladder and other minor details are indicated on the drawings but do not require a particular description as not differing from the usual constructions.

What I claim as new and desire to secure by Letters Patent is:

1. The construction of the ladder consisting of several sections joined and hinged substantially as described.

2. The secure folding and unfolding of the ladder by means of the windlass H, the reel or drum D and the ropes H substantially as specified.

3. The manner of attaching the escape box N to the ladder and of sliding it on the same substantially as set forth.

4. The manner of adjusting the carriage and frame A to any position required by means of the division of the frame and the insertion of lever screw and handle P P substantially as specified.

5. The general construction of the machine in the manner and for the purpose substantially as described.

WILLIAM BREITENSTEIN.

Witnesses:

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