

B. STANLEY.
ELEVATOR LADDER.

APPLICATION FILED MAY 4, 1911.

1,010,526.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 1.

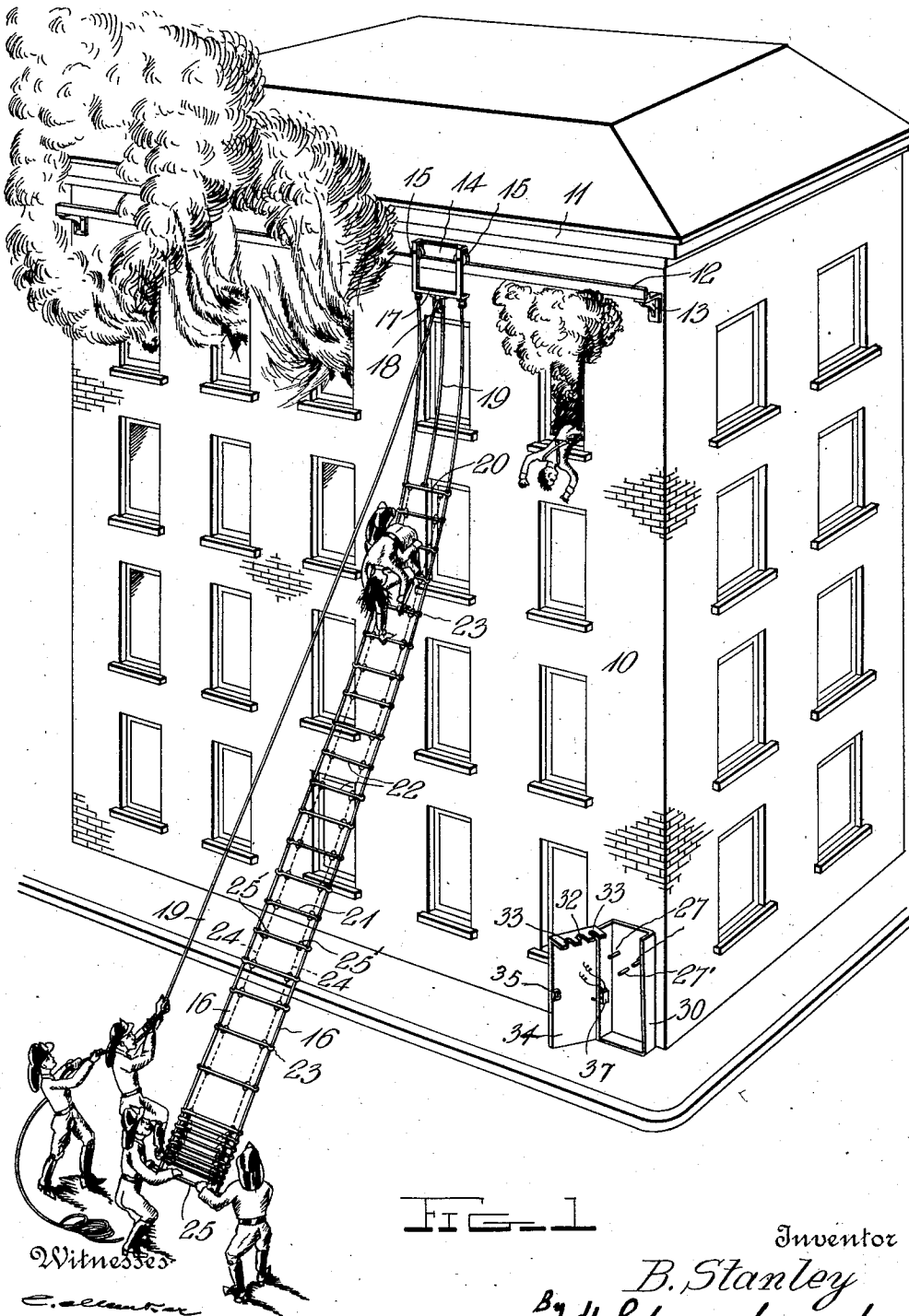


FIG. 1

Inventor

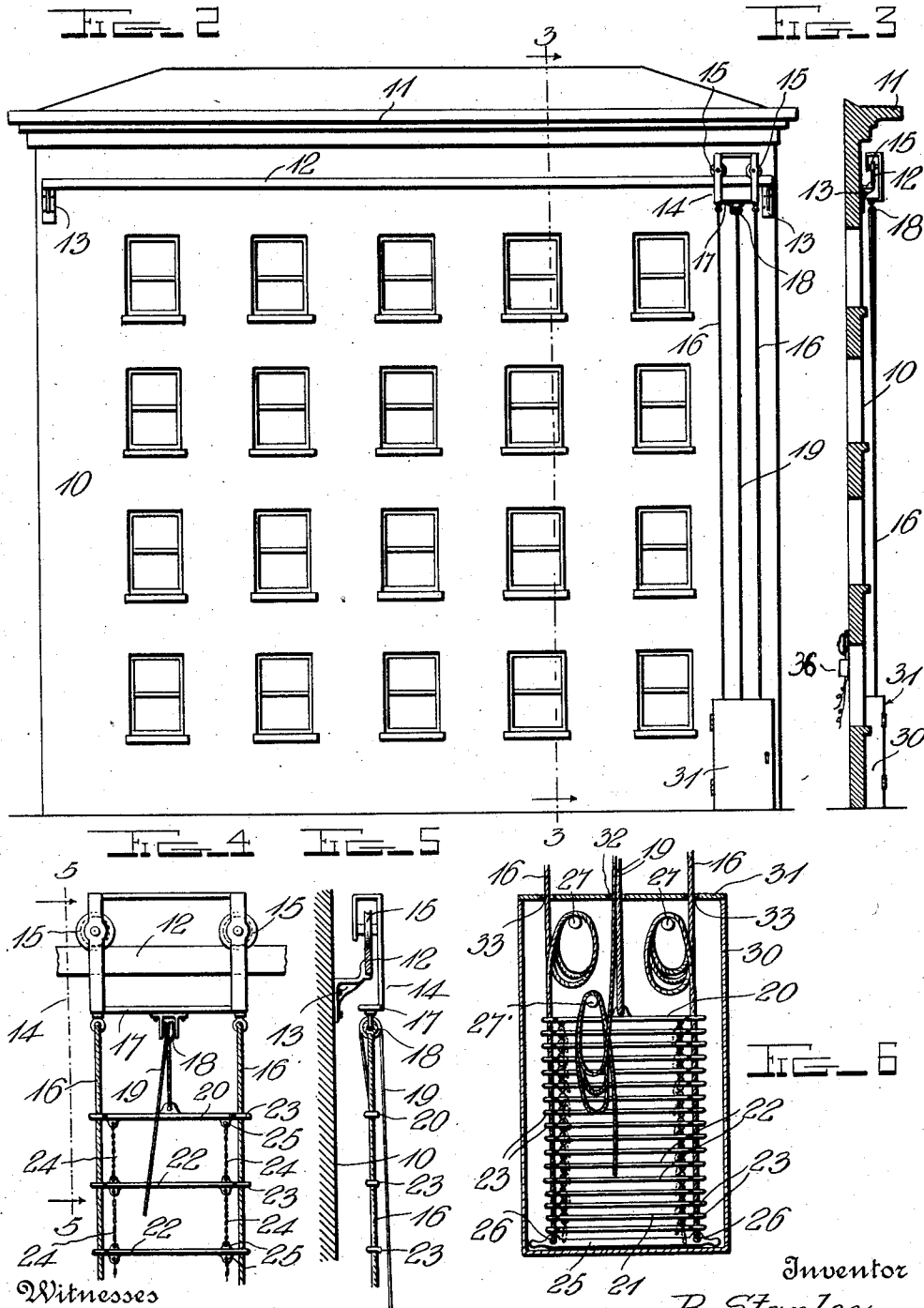
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Witnesses

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UNITED STATES PATENT OFFICE.

BUELL STANLEY, OF HERNDON, VIRGINIA.

ELEVATOR-LADDER.

1,010,526.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed May 4, 1911. Serial No. 624,893.

To all whom it may concern:

Be it known that I, BUELL STANLEY, a citizen of the United States, residing at Herndon, in the county of Fairfax and State of Virginia, have invented new and useful Improvements in Elevator-Ladders, of which the following is a specification.

This invention relates to fire apparatus, and more particularly to a flexible ladder device.

The invention has for an object to provide means for raising and lowering such a ladder and particularly means for guiding and supporting the ladder at a safe distance from a burning building during use while still permitting the escape of persons from the windows of the building to the ladder.

An important object is to provide a flexible ladder of novel construction adapted to be arranged in a compact form when not in use and means for bringing the ladder into a small space without the use of a reel.

A further object is to provide simple means for holding the device when out of use.

The device is designed particularly to obviate the danger arising when persons trapped by flames upon an upper floor of a building become too frightened to use their limbs in descending a ladder, and by its use women or children, need simply cling to the ladder at any point, when it may be swung outwardly out of danger from smoke and flame escaping from windows, and the ladder lowered safely and in a simple manner until the rescued person reaches the ground.

Other objects and advantages will be apparent from the following description, and from the drawings, in which,

Figure 1 is a perspective view of a burning building showing the ladder being lowered with a fireman thereon carrying an unconscious person, Fig. 2 is a front elevation of the building showing the device stored, Fig. 3 is a sectional view on the line 3 3 of Fig. 2, Fig. 4 is a fragmentary detail of the carriage, Fig. 5 is a vertical section on the line 5 5 of Fig. 4, Fig. 6 is a detail sectional view of the storage housing showing the ladder stored and ready for use.

There is illustrated a building to the front wall 10 of which, above the uppermost windows, and a spaced distance below the eaves 11, there is mounted a rail 12 upon suitable brackets 13, the rail being prefer-

ably disposed inwardly of a vertical line from the outer edge of the eaves, so as to be protected from the weather. Traveling the rail 12, there is an anchor carriage 14, comprising a suitable frame having the grooved wheels 15 engaged spacedly over the upper edge of the rail, and suspended from opposite sides of the frame there are heavy guide ropes or cables 16, reaching to or near the ground, or being of greater length if desired. The ropes 16 may be considered as anchored by the carriage, although movable along the rail 12. A heavy cross bar 17 is formed upon the carriage, and extends across the space between the upper ends of the ropes. Centrally of the bar 17 there is mounted a pulley 18, in a plane transverse to the bar, engaged over which pulley there is a hoisting rope 19 the inner end of which is connected to the upper rung 20 of a flexible ladder 21, carried slidably upon the guides 16, as will be described. The ladder comprises the intermediate rungs 22, which may be formed of metal rods, or hollow tubing, the ends being bent inwardly to form guide eyes 23, receiving the guide ropes 16 slidably therethrough. All of the rungs are connected to form a continuous flexible ladder by means of short lengths of chain 24, the opposite ends of each length being engaged in suitable perforated ears 25' formed on opposite sides of the rungs as shown. The upper rung 20 is preferably made heavier than the intermediate rungs, to avoid liability of its breakage under the strain of the weight of the entire ladder and persons carried thereon. At a suitable point adjacent the ground the guide ropes 16 are provided with a cross bar 25, serving as a stop for the flexible ladder when allowed to fall, and also as a controlling means, anchor or grip bar, whereby the lower end of the ladder may be grasped and swung outwardly as shown in Fig. 1, when desired.

When not in use, the flexible ladder is disposed near the lower end of the guide ropes 16, as shown in Fig. 6, the rungs being disposed in close parallel relation. The ropes 16 are engaged slidably through suitable openings 26 adjacent the end of the bar 25, and may be knotted at their ends or inwardly thereof at proper distance to check outward movement of the bar 25 when at a proper point to control the ladder when swung a safe distance outwardly from the building, as will be described. The free

ends of the ropes 16 when out of use may be coiled and kept hung upon suitable pegs 27, fixed in the back of a suitable storage housing 30, secured to the wall 10 of the building at or adjacent the ground. The casing includes also sides, bottom and top, the latter being numbered 31, and being provided with two slots 33 opening on the edge of the top, into which the ropes 16 may be moved laterally and having also a central slot 32 adapted to receive both ends of the hoisting line 19, the slack in which is hung upon the pin 27'. A door 34 is hinged to one side of the housing, and if desired the top of the casing may be attached to the door as shown in Fig. 1 with the slots for the various ropes opening upon the inner edge.

The door of the casing is provided with a suitable lock 35, which if desired may be covered with glass adapted to be broken to allow operation of the lock without the use of a key, and also, if desired a suitable alarm 36 may be disposed within the building, and operated by the contact closer disposed at 37, and arranged to be operated by the opening of the door. Thus, the residents of the building will be suitably alarmed at any time that the door is opened, preventing the use of the device improperly, and also serving as a warning to any who may not have learned of danger, in the event of a fire.

In use, in the case of a fire, any person may open the door of the housing, hoist the ladder upon the guide ropes 16 to the proper point and shift the device to a position before those windows at which people appear to be rescued. The end of the hoisting rope 19 may be secured to one of the pins 27, or may be held by persons and after some one gets upon the ladder from the building the ladder may be lowered to facilitate the descent, or the ladder may be maintained in elevated position while the victim escapes by climbing down the ladder.

The device is of especial value in the rescue of unconscious persons or those too weak to assist themselves, in which case an able bodied person may hold the weaker one upon the ladder while it is lowered, thus avoiding all risk of dropping the victims or injuring them otherwise. The ascent of firemen may also be facilitated by having them hoisted up by several others instead of losing the time necessary for the climbing of the ladder to the desired height.

It will be understood that if desired the

upper part of the housing may be left open, and the supporting rope disposed before the windows of hallways which usually lead to a vertical series of windows. Thereby, persons within the building will be able to rescue themselves, by operating the line 19 to hoist the ladder.

The bar 25 is adapted to be grasped by firemen or others and the base of the ladder swung far out from the burning building, so that injuries to persons by flames bursting forth from the windows will be largely obviated, and damage to the ladder itself prevented.

What is claimed is:

1. In a device of the class described, the combination with a building having a plurality of floors and respective windows or the like, of parallel guide members anchored above the uppermost and adapted to be positioned adjacent said windows and extending to the ground normally, a multiplicity of rung members relatively slidable longitudinally of the guide members, connections between the rungs to form an extension ladder, and hoisting means operable from the ground whereby any extended portion of the ladder may be moved bodily in extended position up and down the guide members to move a person without climbing.

2. In a device of the class described, the combination with a building having a plurality of vertically spaced windows or the like, of parallel cable elements anchored above said windows and normally extending to the ground, an anchor element longitudinally adjustable thereon adjacent the ground whereby the guides may be anchored out from the building at their lower parts, a multiplicity of rung members relatively slidable on the cable elements, flexible connections therebetween to form an extensible ladder separately of the cable elements, and hoisting means engaged with the upper end of the extensible ladder whereby any extended portion thereof may be moved bodily in extended position up and down the cable elements to move a person without climbing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

BUELL STANLEY.

Witnesses:

H. E. HANES,
N. S. FAUCETT.