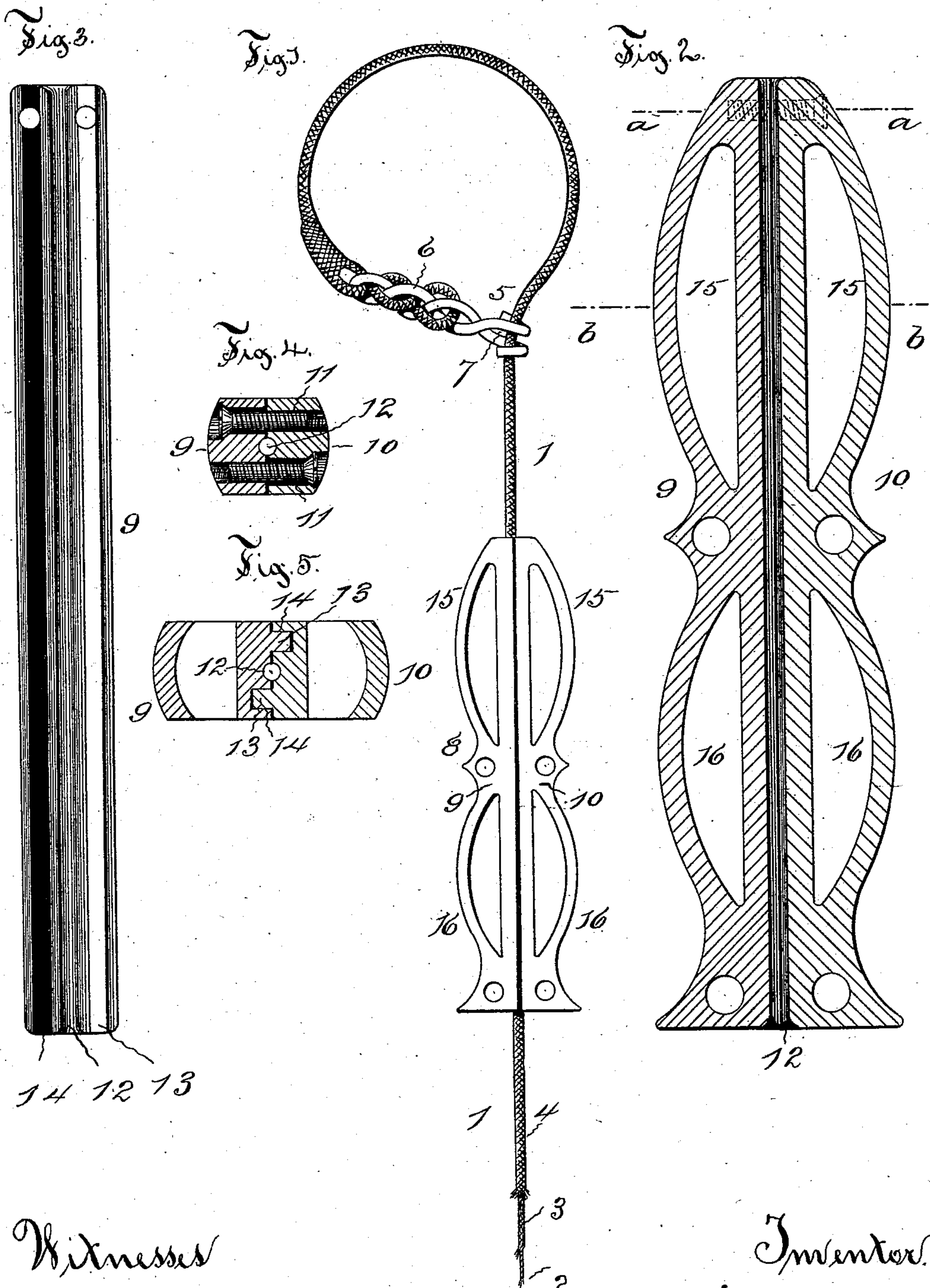


(No Model.)

G. W. ROOT.
FIRE ESCAPE.

No. 556,165.

Patented Mar. 10, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE WELLS ROOT, OF HARTFORD, CONNECTICUT.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 556,165, dated March 10, 1896.

Application filed June 4, 1895. Serial No. 551,614. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WELLS ROOT, a citizen of the United States, residing at Hartford, in the county of Hartford and State

5 of Connecticut, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

The invention relates to the class of portable fire-escapes that have a very small descending-cord which is capable of being closely packed and made to occupy but little space, and the object of the invention is to provide a cheap, strong, and efficient escape of this class which has very simple means for enabling persons to descend from heights and easily control the speeds of descent without chafing or rubbing the skin or flesh of the hands, feet, or limbs.

Referring to the accompanying drawings, 20 Figure 1 is a view of a portion of the fire-escape. Fig. 2 is an enlarged section of the descending grip-handle. Fig. 3 is a view of the inside edge of one part of the grip-handle. Fig. 4 is a transverse section on plane denoted by the broken line *a a* of Fig. 2, and 25 Fig. 5 is a similar sectional view on plane *b b*.

The hook and cord shown in the views are similar to those described in my Letters Patent of the United States of June 18, 1895, 30 No. 541,120. The cord 1, which is supposed to be longer than the distance from the elevation at which the escape is to be utilized to the ground, preferably is formed with a central core 2 of cotton or other soft string, about 35 which are closely wound strands 3 formed of a number of fine but strong steel wires tightly twisted together. This forms a cord of small cross-section that is very flexible, exceedingly strong and flame-resisting. Over this usually 40 a cover 4 of cotton or other threads is braided or twisted by any common means in such manner as to add strength to the interior and also protect the wires from rust or corrosion without materially stiffening or adding to the 45 size or weight of the cord. This soft covering also aids the frictional hold on the cord of the grip-handle when the escape is used. The hook 5 is formed of a hard and strong piece of metal, usually a steel rod, which is 50 doubled, twisted and bent so as to have three closed eyes 6 and two open eyes or loops 7. These loops are turned or bent back in such

manner as to open on opposite sides of the hook, and they lie nearly parallel with a little space between them. The end of the cord 55 is rove back and forth through the closed eyes of the shank of this hook and turned back on itself and then made fast by weaving or braiding the threads that form the soft cover over the end of the cord. 60

Placed on the cord in such manner that it may be moved up and down is the gripping-handle 8. In the views this handle is shown as formed of two pieces of metal 9 and 10, that are held together by two screws 11, that 65 pass through the parts from opposite sides near their upper ends. Each of these pieces preferably has along the center of its inner face a longitudinal groove or cord-track 12, with a tongue 13 on one side and a tongue-groove 14 on the other side of the cord groove 70 or track. These tongues and grooves and cord-tracks are so shaped by a milling or other tool in making that when the parts are put together the tongues and grooves fit 75 closely and the cord-tracks match so as to leave a perforation from end to end of the handle of a diameter somewhat less than the diameter of the cord that is to be passed through this perforation or opening. The 80 outer edge of each of these pieces is shaped to provide two hand-sections 15 and 16, in order that the grip may be grasped by both hands of the person who is forced to utilize the escape. The handle is shown in the draw- 85 ings as formed of two pieces of metal, but of course, if desired, the inner portion may be formed of rods or bars of metal, and the handle or gripping portion may, instead of being formed integral with the metal bars, be formed 90 of wood and secured to the bars in any common manner.

The openings for the shanks and heads of the screws that pass from one part to the other are made a little larger than the diameter of 95 the threaded portions of the screws in order that the parts may have a slight oscillation toward and from each other on the shanks of these screws. The screws are so adjusted as to cause the upper end of the cord-tracks in 100 the parts to bite the cord, and then squeezing pressure exerted on the hand-sections will cause the parts to tightly grip the cord between them, so that the handle cannot freely

slide along the cord. The screws which thus form an adjustable hinge for the parts may be so screwed in that when a gripping pressure is exerted on the parts they cannot be moved along the cord at all, or the screws may be left in such an adjustment that the natural grip of a person hanging on the parts will cause them to squeeze together and bite the cord only sufficiently to slightly retard the movement along the cord and not stop it absolutely.

The hook shown is very strong, as it is formed without any angles which would weaken the structure, and the cord is easily rove or laced through the closed eyes of this hook and its end very readily fastened. The cord made in this manner is very strong although small in cross-section, and it can at any place along its length be very quickly caught by the bent open loops of the hook, from which it cannot free itself after once being hooked, so as to form a sliding noose that in an emergency can be bent or caught around anything handy in a room sufficiently large so that it could not be pulled through a window, but will afford a hold or support for the end of the cord while a person is descending.

The free end of the cord may be thrown out of the window and the individual utilizing the escape may grasp the gripping-handle with both hands and allow himself to slide slowly down. In order to support himself, an individual would grip the handle with a force proportional to the amount of his weight, and that force which he would naturally exert would cause the parts of a handle to be forced together, so as to grip or bite the cord with sufficient tension to hold him and prevent him from slipping down too rapidly. The screws that hold the handle parts together at the upper end are preferably so adjusted that the cord is held with just sufficient friction to permit the handle to move slowly when the weight of a person is suspended from it. A person light in weight would naturally take a light grip on the handle in supporting himself, and this, of course, would not cause the handles to bite the rope so tight but that he would move slowly downward even if light; but a heavy person to support himself would grasp the handle hard to hold this heavy weight, and this would

cause the handle to grip the cord hard, so that the heavy weight would not slide down any more rapidly than the light weight, the bite of the grip depending on the weight of the person using the escape. If the individual finds himself dropping too rapidly, a tighter clasp on the handles will reduce his speed, and, on the other hand, if not moving fast enough a slight relaxation of the grasp on the handles will free the cord and allow the speed to increase.

The device is very convenient for use in an emergency, it is exceedingly strong and durable, and it is indestructible. It is very light in weight and can be packed in a small box or case, so that it is portable, and, while simple, an individual may descend from a height on its small cord at a reasonable velocity without chafing or injuring hands, feet or limbs. The handle parts are so set by the adjustable hinging-screws that they grasp the cord in proportion to the weight of the clinging person, so that the rate of descent is automatically regulated and a heavy person will not travel any faster than a light person.

I claim as my invention—

1. A fire-escape consisting of a metallic cord having means for connecting one end with a support, with a grip movable upon the cord, said grip being formed of two parts, each being provided on the exterior with hand-sections, on the interior with complementary longitudinal cord-grooves, parallel throughout and at their upper ends with transverse perforations, and screws passing through the perforations at the upper ends of the parts, one of said perforations in each part being larger in diameter than the shank of the screw that passes through the perforation, substantially as specified.

2. A fire-escape consisting of a metallic cord having means for connecting one end with a support, with a grip formed in sections loosely held together near their upper ends by screws, said parts having hand-sections on their outer edges and grooves and tongues along their inner edges, substantially as specified.

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Witnesses:

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