

UNITED STATES PATENT OFFICE.

CHARLES A. STURTEVANT, OF PLAINFIELD, NEW JERSEY.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 519,397, dated May 8, 1894.

Application filed August 21, 1893. Serial No. 483,648. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. STURTEVANT, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Fire-Escapes, of which the following is a specification.

In my present improvement I make use of a suspended rope, preferably of wire and a clamp upon the same, to which clamp the person is suspended, so that the weight of the person tends to close the clamp, and such clamp is made of two parts hinged together preferably with the adjacent grooved faces undulating so as to bend the wire rope out of a straight line and thereby regulate the suspending power according to the extent to which the rope is bent and to which the clamp is pressed to produce friction, and the weight of the person is suspended by a chain passing over a sprocket wheel on one clamp and connected at its end to the other clamp, and a lever applied to the axis of the sprocket wheel is employed for lessening the friction produced by the weight of the person and thereby allowing the fire escape clamp to descend with greater or less speed as controlled by the party himself by the lever and sprocket wheel.

In the drawings, Figure 1 is an elevation of the apparatus. Fig. 2 is a sectional plan at the line *x x*.

The clamps A and B are united together at the pivot C, which pivot is preferably upon an arm 2 extending from the clamp A and lapping upon the side of the clamp B, so that the clamp is open at the back for the insertion freely of the rope D or for the separation of the fire escape clamp from such rope. The opposite edges of the clamps A B are grooved with nearly semi-circular grooves 3, 4, and these adjacent edges of the clamps might be straight, but I prefer to make them undulating or corrugated, as shown, in order that the rope D when clamped by such clamps A and B may be bent into a compound curved form and thereby the friction and tightening action of the clamps upon the rope may be increased.

It is advantageous to make use of a handle

E at one side of the clamp A which is usually grasped by the left hand, and there are preferably guide fingers 5 and 6 at the lower ends of the clamps A and B and passing at opposite sides of the rope D, so as to guide such rope as it enters the grooves 3 and 4 of the clamps. These fingers 5 and 6 are out of the way when the clamps are open for the reception of the rope as such fingers are upon the moving ends of the clamps.

I make use of a chain F preferably made of links, which passes over the sprocket wheel G upon the clamp B, and the end of the chain is attached at 7 to the jaw A, and to the lower end of this chain F a belt H or other suspending or supporting device for the individual using the fire escape is provided. It is advantageous to employ a loop at the end of the chain F and a snap or other hook 8 upon the belt by which to attach the same to the chain F; and I find it convenient to employ rings 9 and 10 at the ends of the belt H, such rings being received into the notched eye 11 of the hook 8, and it is preferable to make the width of the notch in the eye 11 less than the thickness of the wire composing the rings and to file one of such rings down thinner at 12, so that such reduced portion 12 may pass through the eye, and this reduced portion should be in such a position on the ring 9 or 10 that the ring has to be turned up edgewise for the reduced portion to pass through the notch in the eye, and hence the rings cannot easily escape from the notched eye when they are in use around the person.

The sprocket wheel G is suitably pivoted and provided with a lever I by which the sprocket wheel can be rotated; I prefer to make the sprocket wheel with a shaft projecting at its respective ends, one of which passes into a hole in the clamp B and the other passes through the cap plate K and receives the eye of the lever I, the parts being connected by a pin or by the lever passing upon a square at the end of the shaft of the sprocket wheel; and it is advantageous to fasten the cap plate K by screws 13 to a rim or stud around the sprocket wheel and projecting from the surface of the clamp B, so that the sprocket wheel is free to be turned,

but it is supported firmly upon the lower end of the clamp B.

It is now to be understood that the parts are so proportioned that the weight of an ordinary individual hanging upon the chain 5 F by the belt or other attachment H is sufficient to close the jaws A and B upon the rope D with power enough to suspend the individual firmly by the rope, the clamps being 10 immovable, and by manipulating the lever I more or less of the weight hanging upon the chain is taken by the sprocket wheel and lever and relieved from the jaws of the clamp so as to lessen the holding power of the jaws 15 and allow the jaws to slide upon the rope, and by means of this lever I the speed with which the party descends can be easily regulated by him.

If desired a spring may be applied, as shown 20 at 14 by dotted lines, which spring is fastened to one of the jaws of the clamp and acts against the other jaw to open the clamp and thereby the spring tends to relieve the friction of the clamp upon the rope as soon as a 25 portion of the weight is taken by the sprocket wheel and lever; this spring however usually is unnecessary, especially where the jaws that clamp the rope are undulating, as shown, because the weight of the rope tends to maintain the same in a straight line and thereby 30 open the jaws. This spring is convenient for keeping the jaws open while the same are being put upon the wire rope. This clamp can be easily removed from or applied to the 35 suspending rope, and if desired a hook may be applied at the upper ends of the jaws A and B and at the opposite surfaces thereof to the arm 2, so as to be hooked across after the rope has been inserted in place and thereby 40 serve to prevent the clamp becoming detached

from the rope at the back end. This is illustrated by the dotted lines Fig. 1.

If desired grooved rollers may be provided upon the edges of the jaws where they press upon the rope, as indicated by the dotted 45 lines at 15, 16, so as to lessen the wear of the jaws against the rope.

I claim as my invention—

1. The combination with the jaws A and B pivoted together, of a sprocket wheel pivoted 50 upon one of the jaws, a lever handle for moving the sprocket wheel, a chain passing over the sprocket wheel and connected to the other jaw, and means for suspending the person from the chain, substantially as set forth. 55

2. The combination with the jaws A and B pivoted together and having guide fingers passing at each side of the rope, of a sprocket wheel pivoted upon one of the jaws, a lever 60 handle for moving the sprocket wheel, a chain passing over the sprocket wheel and connected to the other jaw, and means for suspending the person from the chain, substantially as set forth.

3. The combination with the jaws A and B 65 and pivot C, of the rope received between the undulating faces of the jaws, a sprocket wheel pivoted upon one of the jaws, a lever handle for the same, a chain passing over the sprocket wheel and attached to the other jaw, a belt 70 having a ring reduced in thickness at one portion, a hook for connecting the belt with the end of the chain, and a notched eye for receiving the rings, substantially as set forth.

Signed by me this 14th day of August, 1893. 75

CHAS. A. STURTEVANT.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.