(No Model.)

C. H. TWEED.

FIRE ESCAPE.

No. 284,688. Patented Sept. 11, 1883.

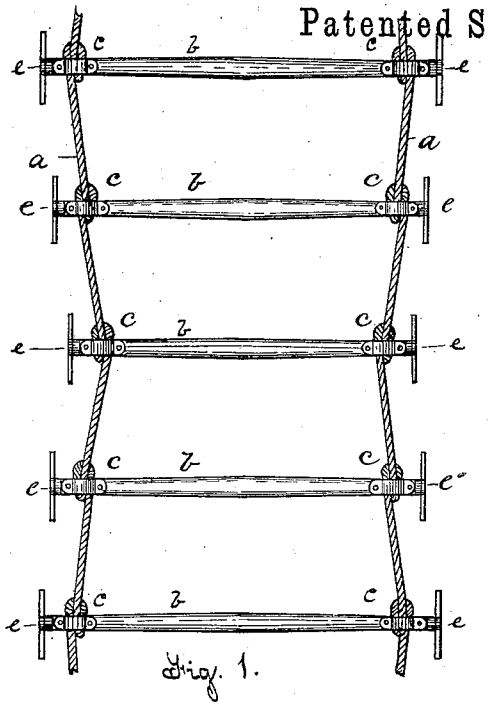


Fig. 1.

Fig. 2.

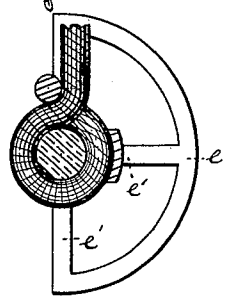


Fig. 3.

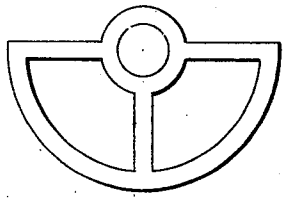


Fig. 4.

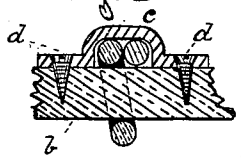


Fig. 5.

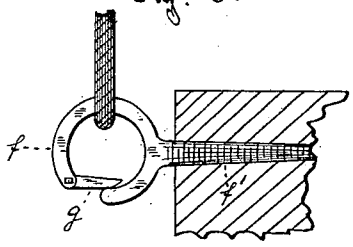
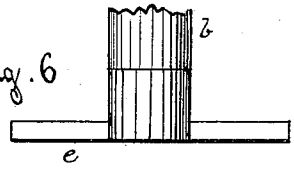


Fig. 6.



Witnesses:
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W. B. Corwin

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UNITED STATES PATENT OFFICE.

CHARLES H. TWEED, OF ALLEGHENY, PENNSYLVANIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 284,688, dated September 11, 1883.

Application filed March 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. TWEED, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the construction of flexible-ladder fire-escapes; and it consists, first, in securing the rounds by passing the rope in a half-hitch or loose loop about the round and inclosing the fold of the rope with a clamp or staple; secondly, in graduating the length of a series of rounds having brace projections, so that in rolling up or folding the ladder the projections will pass each other, and thus reduce the size of the bundle, all as will hereinafter more fully appear.

I will now describe my invention so that others skilled in the art may manufacture and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of a portion of my improved ladder. Fig. 2 is a cross-sectional view through one of the rungs of the ladder. Fig. 3 is a detached plan view of one of the projections which are attached to the ends of the rungs. Fig. 4 is a longitudinal sectional view of a portion of one of the rungs, showing the cap for securing and protecting the rope. Fig. 5 is a detached view of the ring for securing the end of the ladder to the building. Fig. 6 is a view in detail of the rung with one of the projections attached thereto.

Like letters indicate like parts wherever they occur.

In the drawings, *a* represents the side ropes, to which the rungs *b* are secured. These rungs *b* are formed of any suitable material, hard wood being preferred on account of its strength and lightness, and they are secured to the side ropes by forming a half-hitch in each side rope around the rungs, near the ends thereof. In order to prevent these hitches from slipping off the ends of the rungs, they are secured by a metal clamp, *c*, fastened longitudinally to the rungs over the hitches by screws *d*. Instead of these clamps, staples may be used, the points of which are driven into the wooden rung. At the ends of the rungs, and secured thereto, are metal caps, extending from which, at right angles to the rung, are semicirculars *e*, having spokes or braces *e'*, the purpose of which is to prevent the rungs from hanging closely against the side of the building. These semicirculars are preferably formed of metal, and they and the cap may be cast together. The rope used in this ladder is in one piece, a loop being formed at the top, by means of which the ladder may be secured to a hook, *f*, which is attached to the window-sill by the screw-shank *f'*. This hook is also provided with the pivoted guard *g*, the purpose of which is to close the opening of the hook and prevent the ladder from becoming detached therefrom. The rungs *b*, commencing with the top rung, decrease slightly in length, each rung being a little shorter than the one above it for a certain number of rungs, and then gradually increase in length, each rung being a little longer than the one above it for a certain number of rungs, and then as before, and so on alternately to the bottom rung. The purpose of this is to allow the rungs to be packed closely together, the semicircular pieces at the ends fitting one within the other.

When the ladder is not in use, it may be so packed or folded together and placed in a suitable box at the foot of the window-sill.

When it becomes necessary to use the ladder, the loop is secured in the hook *f*, and the ladder is dropped from the window, unfolding in its fall. Thereby a safe means of egress is afforded through the windows of the upper stories of the building.

The advantages of my improvement are that the ladder is light, strong, and durable, and as the rungs cannot come in contact with the walls the danger of being thrown from the ladder is lessened, and an easy escape is afforded in case of fire. The ladder is not liable to break, the rungs being firmly secured to the side ropes, which are in one piece, and it is easily stowed away, when not in use, in a place where it is accessible at all times.

I am aware that devices have been employed to prevent the rungs of rope ladders from coming in contact with the sides of the building in fire-escapes, and that also the rungs of rope ladders have been attached by forming a half-hitch in the side ropes, and I therefore do not claim those features, broadly; but

What I do claim is—

1. In a flexible-ladder fire-escape, the combination of a round, a rope inclosing the round by a half-hitch or loose loop, and a staple or clamp which confines the fold of the rope, whereby the round and rope are securely united, substantially as and for the purposes specified.

2. A fire-escape consisting of a rope ladder the rungs of which are graduated in length, in combination with projecting pieces attached to the rungs, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 9th day of March, A. D. 1883.

CHARLES H. TWEED.

Witnesses:
W. B. CORWIN,
L. C. FITLER.