(No Model.)

M. M. HUGHES.

LADDER.

No. 364,173. Patented May 31, 1887.

Fig 1.

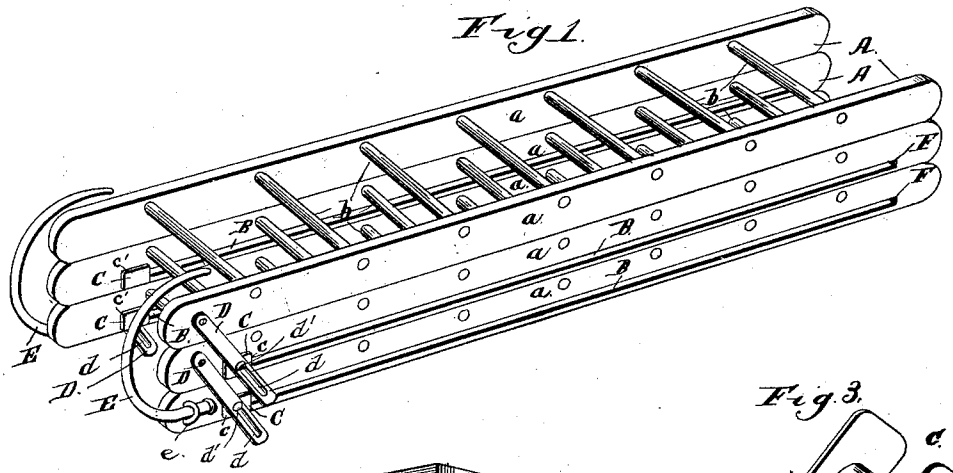


Fig 3.

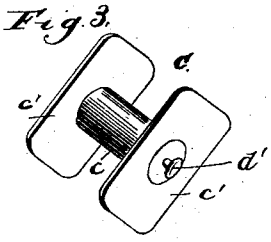


Fig 2.

Witnesses
Geo. Thorpe.
E. G. Siggers

Inventor
M. M. Hughes

By his Attorneys,
C. A. Snow & Co.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MATTHEW M. HUGHES, OF PETOSKEY, MICHIGAN.

LADDER.

SPECIFICATION forming part of Letters Patent No. 364,173, dated May 31, 1887.

Application filed March 8, 1887. Serial No. 230,135. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW M. HUGHES, a citizen of the United States, residing at Petoskey, in the county of Emmet and State of Michigan, have invented new and useful Improvements in Ladders, of which the following is a specification.

The invention relates to improvements in ladders, the object being to provide a ladder light and simple of construction that may be folded into small compass when not in use, and that may be hung from a window or other support and unfolded down to the ground therefrom, so as to serve as an escape from a burning building or from a building in which the ordinary egress-avenues are obstructed.

The invention consists in the construction and novel arrangement of the side bars of the ladder, the links which connect the sections, and the means of suspension, which construction and arrangement are hereinafter described, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the ladder folded up for storage or transportation. Fig. 2 is a perspective view of the same suspended from the window of a burning building and passing over an awning-frame. Fig. 3 is a perspective view of one of the devices that slide in the slots of the side bars of the section, and to which the connecting-links are attached.

Referring to the drawings, A A designate the sections of the ladder of similar size and construction, and *a a* designate the side bars or beams of said sections. The side bars of each section, with the exception of the one forming the lowest part of the ladder when suspended, are provided with the longitudinal slots B B, extending nearly their entire lengths, and situated near their rear edges, or their edges adjacent to the building when suspended. *b b* are the rounds of the sections, of usual construction and situated nearer the front edges of the bars *a* than the rear edges of the same, so as not to interfere with the parts moving in the slots B. The ends of the bars *a* are rounded, for a reason hereinafter explained.

C C are retaining-pieces, preferably of metal, and each provided with a cylindrical central part, *c*, fitting and sliding in the slots B of one of the side bars of a section, and the plate-shaped end parts *c' c'*, which rest against the surfaces of the said side bar, so as to keep the piece in the slot.

D D are link-bars, each having one end pivoted to the outer surface of a side bar *a*, near one end thereof, and the other end provided with a longitudinal slot, *d*, through which passes a stud, *d'*, standing outward from the center of the outer plate, *c'*, of the pieces C, and sliding in the slot B of the side bar of an adjacent section.

E E are large hook-shaped rods, attached at one end to the outer surfaces of the side bars of the section forming the upper end of the ladder, and near the upper ends of said bars. The attached end of each bar passes through staples *e e*, secured in the side bar, and is headed, to prevent it pulling out of the staples.

When the ladder is not in use, the sections may be folded on each other and the hooked rods turned up against their sides, as shown in Fig. 1. In this position they may be stored in a closet or other convenient part of a room ready for use. When so folded, the studs *d'* run inward in the slots *d*, so as to allow the sections to come into contact.

To use the ladder, the hooked rods E are turned outward and engaged over a window-sill or other suitable support, and the unslotted lowermost section is slid downward on the adjacent section, the pieces C moving down to the lower ends of the slots B, where they rest upon the rubber pads or bumpers F F, which are intended to prevent jar when the ladder is in use. When the outermost section has entirely descended, its upper rounded end abuts against the lower rounded end of the adjacent section, so that the one can turn on the other to form a bend in the ladder without danger of bumping or jarring on each action, the links and slots therein being made of suitable length to permit this action.

When the ladder is down, it may be bent so as to pass over an awning-frame or other obstruction below; or the lower end may be removed some distance from the building, so that the persons descending will be removed some distance from the fire below the window from which they have escaped.

Having described my invention, I claim—

1. A ladder comprising a series of similar sections having longitudinal slots in their side bars and devices carried by the adjacent sec-

tions to engage said slots and thereby hold the sections together and permit their movement upon each other, substantially as set forth.

2. In a ladder, the combination, with the similar sections, of the hooked bars attached to the side bars of the section forming the upper end of the ladder by staples, in which their ends rotate so that the bars can either be turned outward for attachment to a support or inward against the sections, and means, substantially as described, whereby each section can be slid down to the end of its adjacent inner section, substantially as specified.

3. In a ladder, the combination of the side bars, of the similar sections provided with the longitudinal slots, the retaining-pieces having their shanks sliding in said slots and their end plates on each side of the same, the links pivoted at one end to the side bars of a section, and having the slots on their outer ends engaged to studs standing outward from the retaining-pieces attached to an adjacent section, and means, substantially as described, whereby the upper section may be suspended from a suitable support, as specified.

4. The folding suspensible ladder, composed of the sections A, provided with rounds *b*, and side bars, *a*, having the slots B, provided at their lower ends with the pads F, the retaining-pieces C, provided with the shanks *c* and end plates, *c'*, the links D, provided with the slots *c'*, engaging the studs *d'* on the corresponding pieces C, and the hooked bars E, turning in the staples *e*, secured to the side bars of the section forming the top of the ladder, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MATTHEW M. HUGHES.

Witnesses:
D. C. PAGE,
G. C. ALLEN.