(No Model.)

G. E. NOWLAND.

LADDER.

No. 445,453. Patented Jan. 27, 1891.

Fig. 1.

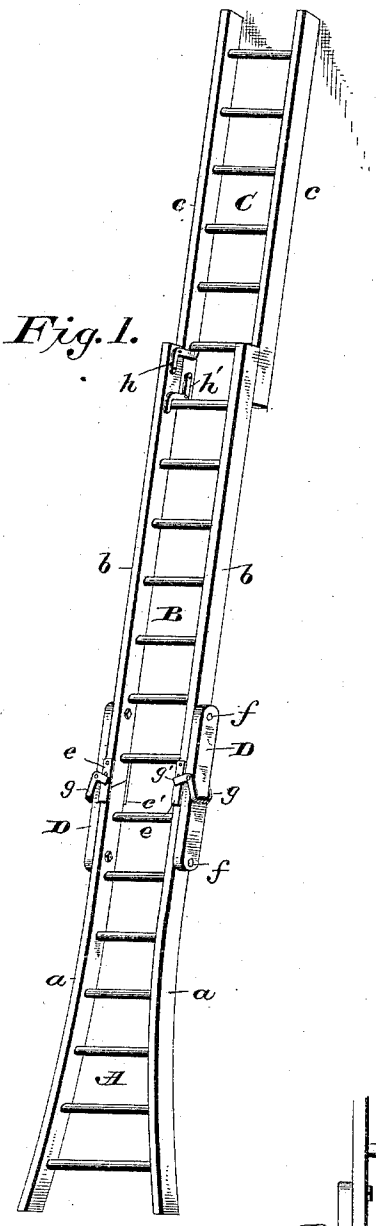


Fig. 2.

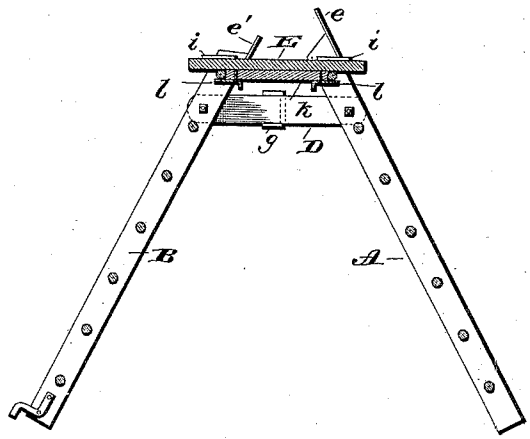


Fig. 3.

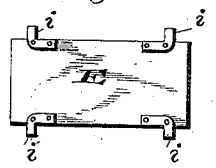


Fig. 4.

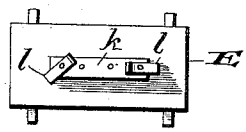
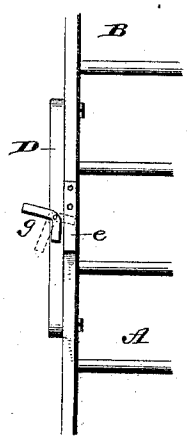


Fig. 5.



Witnesses
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GEORGE E. NOWLAND, OF NEW BOSTON, MICHIGAN.

LADDER.

SPECIFICATION forming part of Letters Patent No. 445,453, dated January 27, 1891.

Application filed November 6, 1890. Serial No. 370,459. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. NOWLAND, a citizen of the United States of America, residing at New Boston, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Ladders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in sectional ladders.

The object of the invention is to provide a ladder which is so constructed that the parts can be connected together to form a long ladder or folded so as to make a step-ladder and platform-support; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a ladder constructed in accordance with my invention, the sections being connected to form an ordinary ladder. Fig. 2 is a side view showing two sections arranged to form a step-ladder and platform-support. Fig. 3 is a plan view of the platform. Fig. 4 is a plan view of the under side of the platform shown in Fig. 3. Fig. 5 is a detail view of the lock for securing the first and second ladder-sections together.

A, B, and C refer to the different ladder-sections, the upper sections, or B and C, being made up of parallel side pieces *b b* and *c c*, to which the rungs are secured in the usual manner. The side pieces *a a* of the lower ladder-section A diverge at their lower ends so as to give a wider base. The upper ends of the side pieces *a* and the lower ends of the side pieces *b* of the sections A and B are beveled or cut at an angle, as shown, and on opposite sides of said ladder-sections are secured plates *e* and *e'*, which overlap the ends of the sections, as shown. These sections are further secured to each other by side bars D D, attached to the side pieces of the sections by pivot-bolts *f f*, and centrally these re-enforcing bars D have pivotally attached thereto stirrups *g*, which embrace the overlapping plates of the sections and hold the same on a line with each other. To the upper end of the section B and ends of the succeeding sections are secured angle-irons *h*, the projecting ends thereof being adapted to engage the rung of the adjacent section to form the rigid connection, as shown. By providing the sections B and C with such angle-irons the said sections can be detachably secured in place.

E refers to a platform or board, which is of suitable length, the width corresponding with the distance between the side pieces of the ladder-sections A and B, and said board or platform is provided on its upper surface near each corner with angle-irons *i i*, the projecting ends of which are adapted to lap the side pieces of the ladder-sections when positioned, as shown in Fig. 2. The under side of this board has a cleat or brace *k* rigidly secured thereto, which carries turn-buttons *l l*, intended to engage the upper rungs of the sections to retain the board in place. The platform constructed as described, when used in connection with the ladder-sections and brace D, will present a rigid structure, which can be used as a step-ladder.

A combination-ladder constructed as hereinbefore described is extremely simple, can be cheaply manufactured, easily manipulated, and when not in use folded to occupy but little space.

The pivoted stirrups are arranged to swing downward when the ladder is in use, thereby obviating the employment of catches or fastening devices.

I am aware that prior to my invention it has been proposed to provide a folding ladder with means whereby the sections can be held one upon the other, the two lower sections being adapted to be arranged to support a platform, and I do not claim such construction, broadly, as my invention.

I claim—

1. The combination, in a ladder, of the sections A B, side bars D, pivotally attached thereto and carrying stirrups which embrace the ends of the sections, substantially as set forth.

2. The combination, in a ladder, of the sections A B, having plates *e* and *e'* secured

thereto, bars D, connecting said sections and carrying stirrups the projecting ends of which embrace the plates *e* and *e'*, substantially as set forth.

3. In a ladder, the combination of the sections A and B, plates *e* and *e'*, rigidly secured to the ends of said sections to overlap the same, side bars D D, bolted to the sides of the sections near the ends thereof and carrying stirrups *g*, the projecting ends of which embrace the plates *e* and *e'*, the parts being organized substantially as set forth.

4. The combination, with the ladder-sections connected to each other by bars D D, of a platform E, having angle-irons *i*, which are adapted to embrace the side pieces of said ladder-sections, said platform carrying on its under side a cleat or brace against the ends of which a rung of each ladder-section abuts, substantially as set forth.

5. The combination, with the ladder-sections A and B, connected to each other by bars D D, of a platform E, adapted to rest upon the upper rungs of the ladder and provided with a cleat or brace having turn-buttons for securing the platform to the rungs, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. NOWLAND.

Witnesses:
W. H. HEYWOOD,
L. H. HEYWOOD.