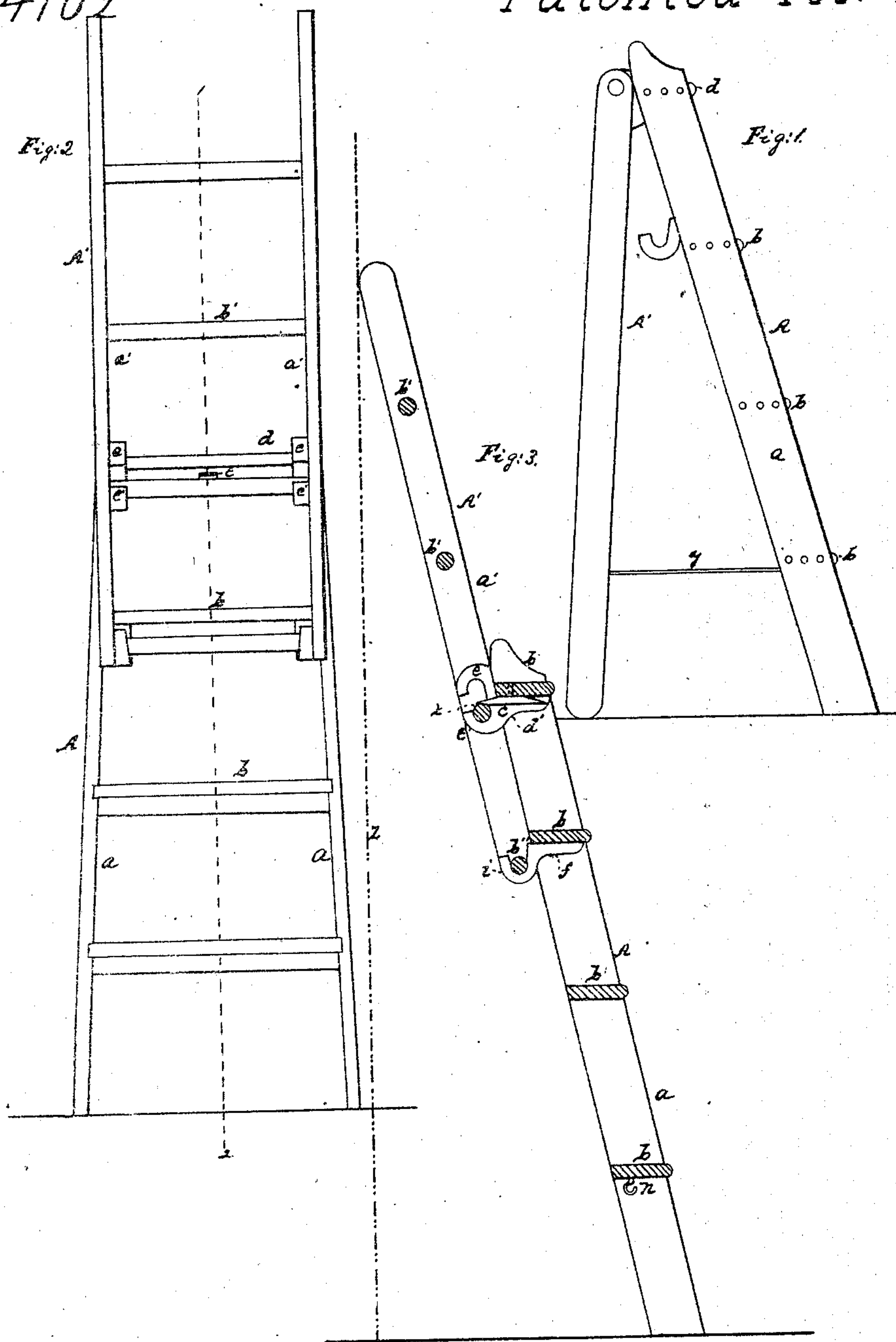


Luzier & Haas.

Ladder.

N^o 74102

Patented Feb. 4, 1868.



Witnesses.

Wm. Albert Steel.
 Howthorn

Inventors.

T. B. Luzier & J. A. Haas
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United States Patent Office.

T. B. LUZIER AND GEORGE A. HAAS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 74,102, dated February 4, 1868.

IMPROVED LADDER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, T. B. LUZIER and GEORGE A. HAAS, of Philadelphia, Pennsylvania, have invented an Improvement in Ladders; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention consists of certain hooks and a turn-buckle, connected to one section of a ladder, and arranged for the reception and retention of the rungs of another section, substantially as described hereafter, so that the said sections may be adjusted to form a step-ladder or an ordinary continuous ladder.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a side elevation of our improved ladder.

Figure 2, a front view, with the detachable parts in a different position; and

Figure 3, a sectional elevation on the line 1-2, fig. 2.

A A' are two sections of our improved ladder, the former consisting of side strips, *a a*, connected by boards or steps, *b b*, placed at suitable intervals apart, and the latter of side strips, *a' a'*, connected together by rungs *b' b'*. To each side piece *a*, near the upper step *b*, is secured a plate, *d*, on which are two hooked projections, *e e'*, bent towards each other, the space *x*, between the ends of the adjacent hooks, being just sufficient to permit the passage between them of one of the rungs of the section A', and to the under side of the upper step *b*, midway, or thereabouts, between the side pieces *a a*, is connected a turn-buckle, *c*, for a purpose described hereafter. To the second step, *b*, of the section A, are secured plates, *f f*, on each of which is a hooked projection, *i*, for the reception of one of the rungs of the section A', and to the lower rung of this section is secured a cord, *y*, looped at the outer end, so as to be connected to a hook, *n*, secured to the lower step of the section A.

When the sections have to be used as a portable step-ladder, the end rung *b''* of the section A' is passed between the hooks *e e'*, so as to be caught by the hooks *e*, and the turn-buckle *c* is turned, so that one end will project beneath the said rung, and prevent its escape from the hook *e*. The loop of the cord *y* is then placed upon the hook *n*, and the sections are separated at their lower ends, as far as the cord will permit, (as shown in fig. 1.) when the step-ladder is ready for use.

When a longer ladder is required, the section A' is inverted, its rung *b''* is placed in the hooks *i*, the second rung is introduced into the hooks *e'*, and the button *c* is turned, so as to extend over the adjacent rung and confine it in the hooks, the section A' thus arranged, forming a continuation of the section A, when the ladder may be used as an ordinary straight ladder, its upper end being supported by the wall *z*, or other object against which it bears, (fig. 3.)

The two parts A A' may be disconnected and used separately, when two short ladders are required, and it will be apparent that additional plates, *d f*, with hooked projections, may be secured to the section A', when it is desired to connect to the ladder a third section.

We claim as our invention, and desire to secure by Letters Patent—

Hooks *e e'* and *i*, and a turn-buckle, *c*, or its equivalent, connected to one section of a ladder, and arranged for the reception and retention of the rungs of another section, substantially as and for the purpose specified.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses.

T. B. LUZIER,
GEORGE A. HAAS.

Witnesses:

CHARLES E. FOSTER,
W. J. R. DELANY.