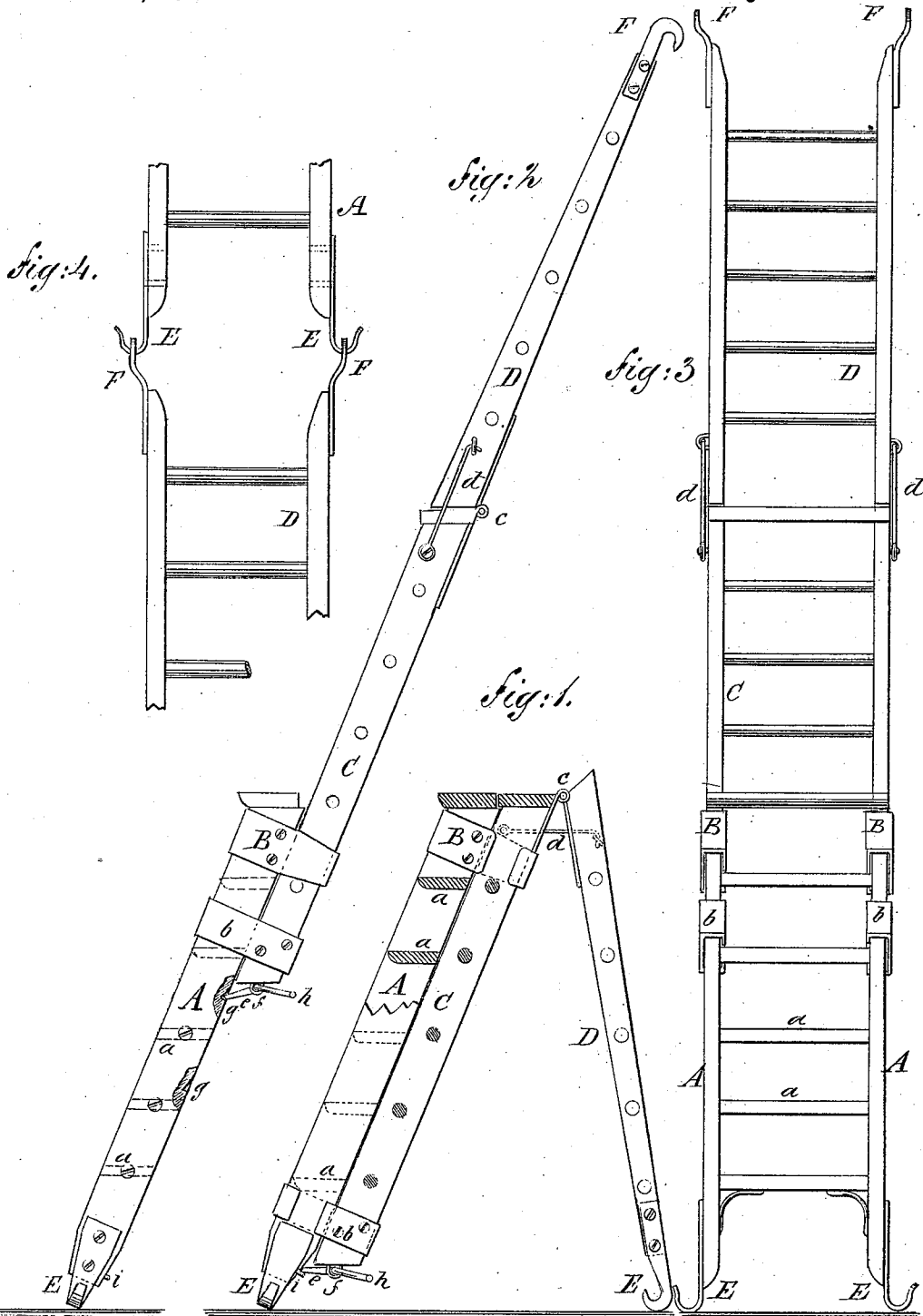


W. H. BITTER.
EXTENSION STEP-LADDER.

No. 181,305.

Patented Aug. 22, 1876.



WITNESSES:

Chas. Nida
John Bethals

INVENTOR:

W. H. Bitter

BY

Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILHELM H. BITTER, OF FORT HOWARD, WISCONSIN.

IMPROVEMENT IN EXTENSION STEP-LADDERS.

Specification forming part of Letters Patent No. 181,305, dated August 22, 1876; application filed June 20, 1876.

To all whom it may concern:

Be it known that I, WILHELM H. BITTER, of Fort Howard, in the county of Brown and State of Wisconsin, have invented a new and Improved Extension Step-Ladder, of which the following is a specification:

My invention consists in making the several parts of a step-ladder of such form that while it may be used as a step-ladder in the ordinary way, it may also be unfolded and extended, and used as an ordinary ladder.

Figure 1 in the drawing is a side elevation, in part in section. Fig. 2 represents the ladder as unfolded and extended. Fig. 3 is a front elevation of Fig. 2. Fig. 4 represents two ladders hooked together.

Similar letters of reference indicate corresponding parts.

A represents a portion of a ladder, which is provided with ordinary steps *a*, and also with the slides B, which embrace the section C. A slide, *b*, is attached to the section C, and embraces the rail of the part A. D is a section of the ladder, which is hinged to the part C at *c*, and acts as a brace or rear standard when the device is used as an ordinary step-ladder. Hooks *d* are attached to the section C, which engage with eyes in the part D, holding it in position. When a longer ladder is required than that shown in Fig. 1, the section D is unfolded or turned upon the hinges *c* until it is in line with the section C. If it is desired to make the ladder still longer, the section C is moved upward through the slides B, carrying the slide *b* up on the rail A. Dogs *e* are fixed to a rod, *f*, which runs across the lower end of the part C, which are capable of engaging with the notches *g* in the rails A, so

that as the ladder is extended the dogs retain the parts in position. E E are hooks, which project laterally from the sides of the part A at the bottom, and are capable of engaging with hooks F F, which are attached to the section C, so that two or more of the ladders may be hooked together. This feature of my invention makes it possible to use the ladder as a fire-escape, it being only necessary to provide a suitable device on which to place the hooks F. Such device may consist of two rods, tied or chained together, one of them to be placed inside the window, and the other on the outside; or a chain may be attached to the sides of the window, forming a loop, into which the ladder may be hooked. When the ladder is folded together, a crank or latch, *h*, which is formed on the end of the rod *f*, is made to engage with one of the hooks F as the dog *e* strikes the staple *i*. This holds the parts together.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A step-ladder composed of three sections, two of which are capable of extension by sliding one upon the other, and a third section, which is hinged to one of the sliding sections, which is capable of unfolding, the whole being provided with hooks for uniting two or more ladders, substantially as shown and described.

2. The combination of the hooks E E and F F and sections A and D, as specified.

WILHELM HENRY BITTER.

Witnesses:

C. W. MONROE,
JAMES NEWKIRK.