M. N. LOVELL.

Improvement in Step Ladders.

No. 125,683. Patented April 16, 1872.

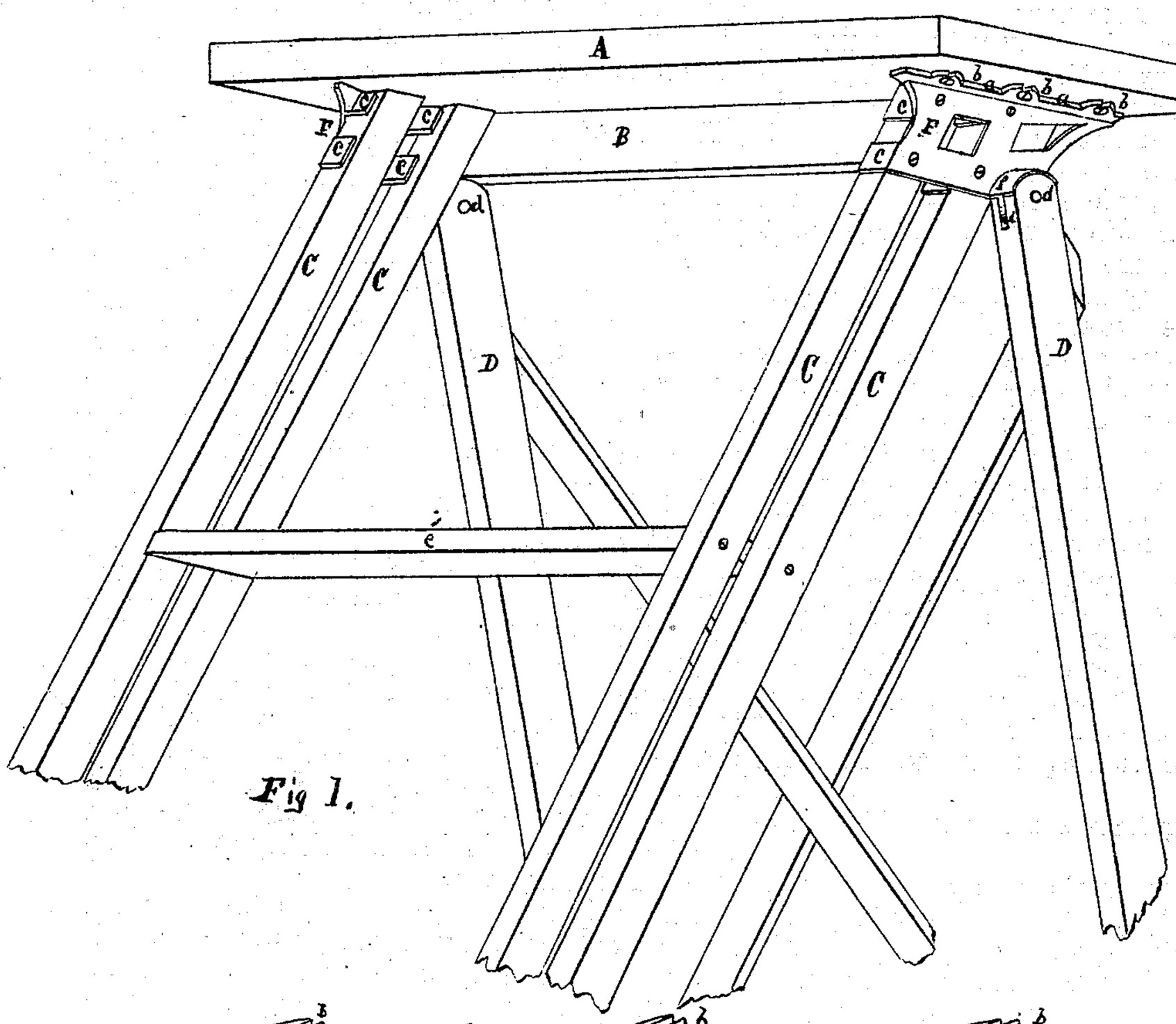

Fig 1.

Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

MELVIN N. LOVELL, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. 125,683, dated April 16, 1872.

To all whom it may concern:

Be it known that I, MELVIN N. LOVELL, of Erie, in the county of Erie and State of Pennsylvania, have invented an Improvement in Step-Ladders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in providing a device whereby the construction of step-ladders is facilitated, and whereby strength and durability are secured without adding weight or bulk, said device being a metallic casting used to bind together the upper ends of the slitted side strips of the ladder, and attach the same to the top step, and to which is also hinged the folding stay-brace.

The following description more fully illustrates my device, which is shown in the accompanying drawing, as follows: Figure 1 is a perspective view of a step-ladder, (the lower part of which is broken away,) wherein is shown my device. Fig. 2 is a perspective view of the casting detached from the ladder.

The following letters illustrate the following parts.

A is the top step of the ladder. B is a cross-stay piece. C C and C C are the side pieces. D D are the folding-prop or stay-braces. F F are the metallic castings. *e* is one of the steps of the ladder. In general appearance, the construction of this ladder is the same as most improved step-ladders. The side strips C C and C C are formed each of one piece of board, which is opened with a saw-cut to near its lower end, and is then spread apart.

The chief feature of my invention is the casting F, and its combination with the other parts of the ladder. They are made rights and lefts, a perspective view of the inside of a left casting being shown in Fig. 2. This casting is possessed of the following parts: the top face *a a*, with lugs *b b b b*, for attaching the top strip of the ladder; the side lugs *c c c c*, &c., for attaching and giving the proper truss to the side pieces C C; the hinge-plate *d*, and shoulder *f*, for hinging and sustaining the folding prop-legs D. These parts all go together to form the solid casting F.

In Fig. 2 this casting is fully shown. The side lugs *c c c c* and *c c c c* form two spaces, into which fit the opened side strips C C. The upper lugs of each set are so placed that the space between the spaces in which the strips fit are closer together than at the bottom. This gives to the strips C C the proper truss.

In the construction of some ladders, this truss is accomplished by gluing a wedge-formed strip in between the opened strips at the top; in others, it is imitated by opening the side strip with a saw-cut to near each end, only, leaving the ends unsawed, as I do the lower end, and then holding it opened in a truss form by the screws that attach the steps. Both of these plans are defective, as in the first case the wedge is liable to unglue when exposed to the weather, and in the second case there is too much strain on the attaching-screws, and no real truss is formed.

By my device a perfect truss is formed, and an enduring one. I direct especial attention to the parts *d f* of the castings. The hinge-plate *d* slips into a mortise on the end of the folding-prop D, and the prop is pivoted by a pin. The shoulder *f* fits as a cap over the top of the prop, and all the weight sustained by the ladder comes on the whole surface of the top of the prop, and not wholly on the pin. This device is believed to be very useful in its present application.

The manner of constructing a ladder when my casting is used, is as follows: The side strips C C are slit, as required, and their upper ends are sprung into the spaces formed by the lugs *c c c c* and *c c c c*. The steps *e* are then put in. The top strip is then placed onto the faces *a a* and attached by screws in the lugs *b b*. The folding-props D D are then attached to the hinge-plate *d*, and the ladder is complete.

The form of the casting F is such that a wide top step can be used in all cases without extra bracing. This adds to the usefulness of my device.

My device is believed to add strength and durability to a ladder without adding bulk or weight; and facility of construction is also obtained.

What I claim is as follows:

The casting F, constructed substantially as described, for the purposes set forth.

Witnesses: MELVIN N. LOVELL.

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