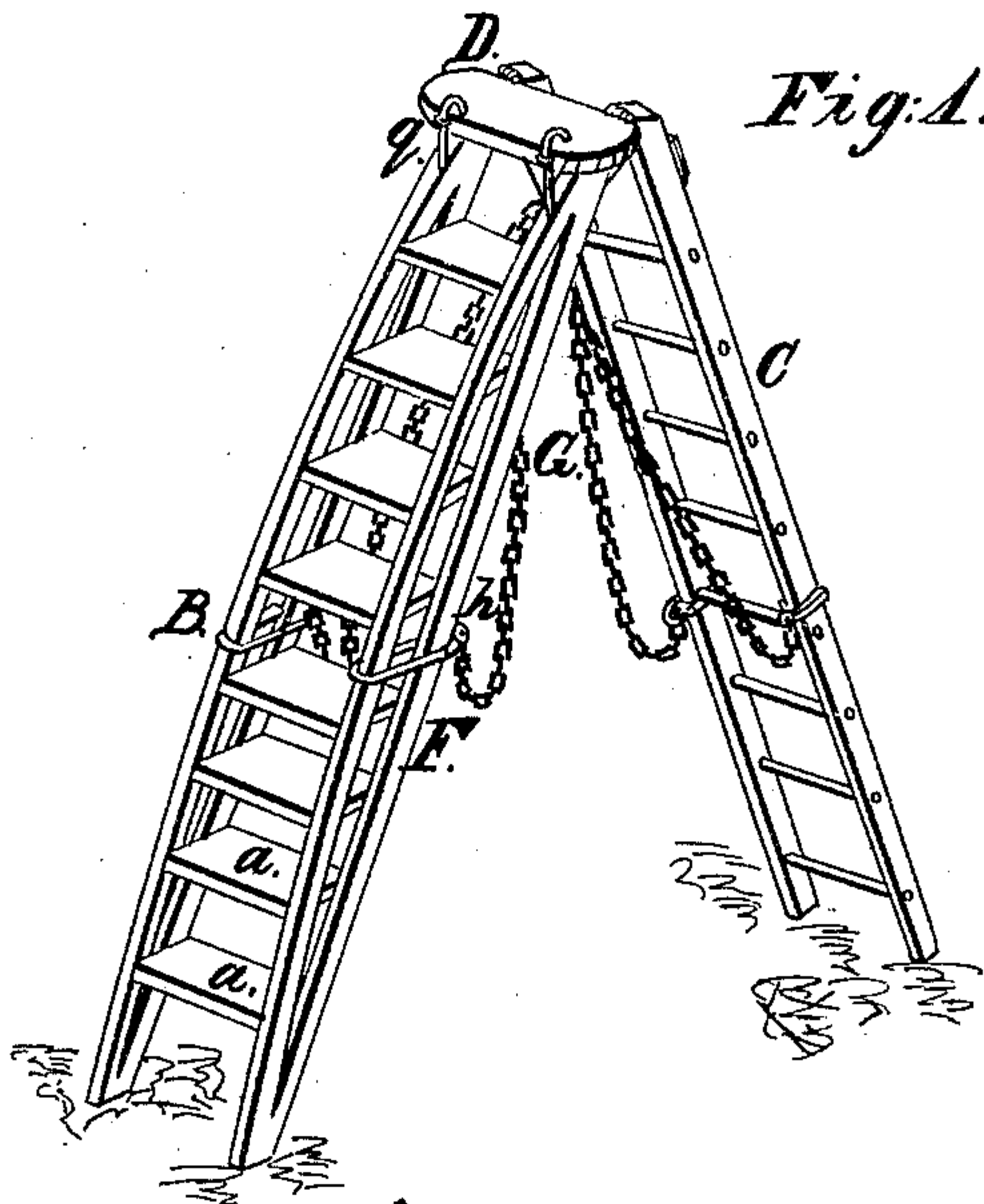


*G. W. Packer*

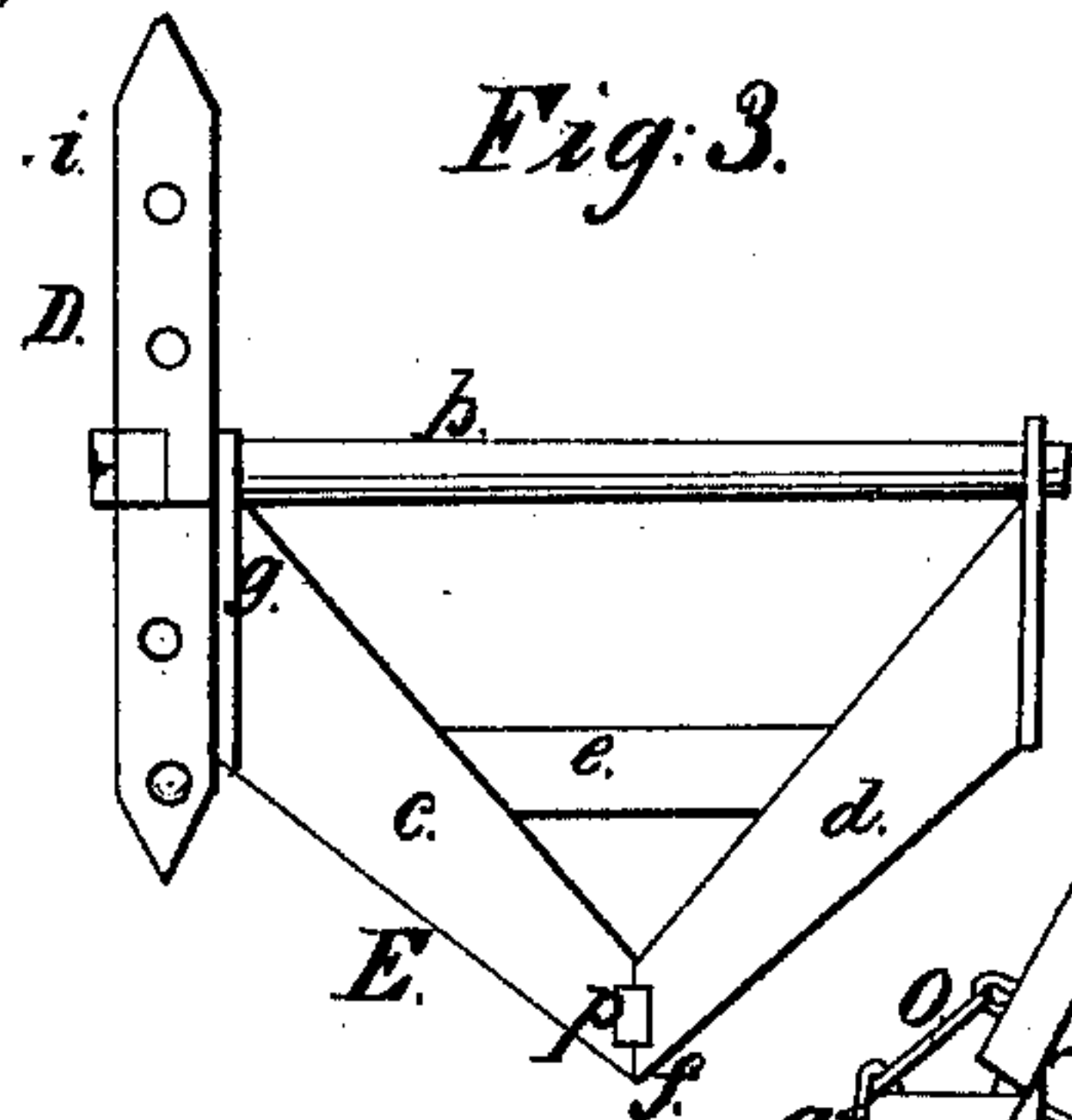
*Extension Ladder.*

*Nº 78,476.*

*Patented Jun. 2, 1868.*

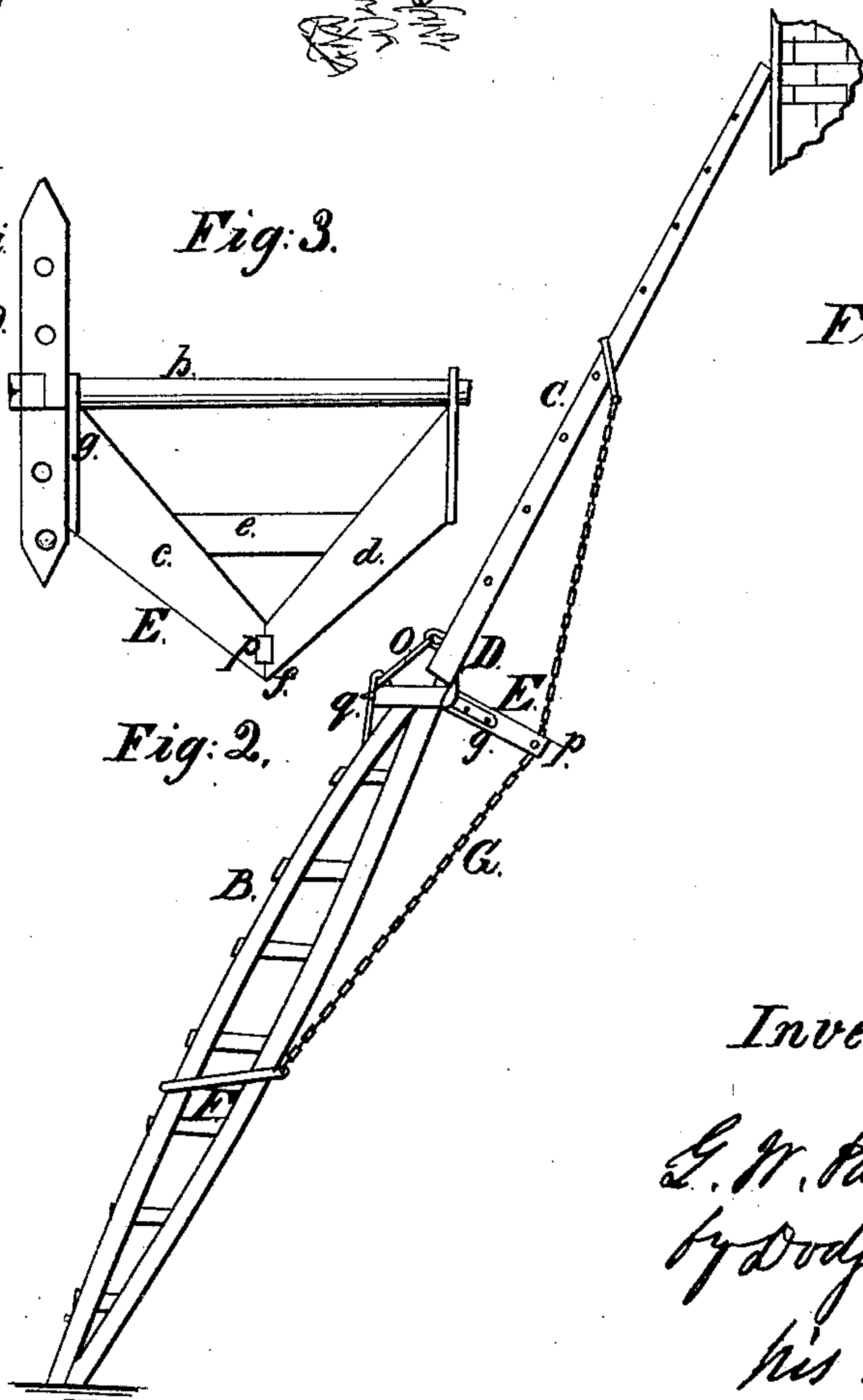


*Fig. 1.*

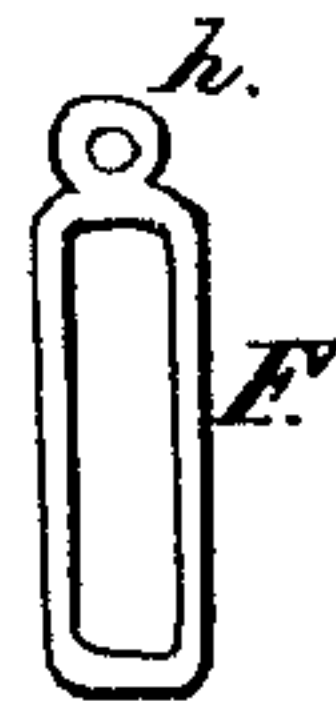


*Fig. 2.*

*Fig. 3.*



*Fig. 4.*



*Witnesses:*  
*P. F. Dodge,*  
*E. Gay,*

*Inventor:*

*G. W. Packer*  
*by Dodge & Munroe*  
*his attys.*

# United States Patent Office.

G. W. PACKER, OF TOULON, ILLINOIS.

*Letters Patent No. 78,476, dated June 2, 1868.*

## IMPROVED EXTENSION STEP-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 I, G. W. PACKER, of Toulon, in the county of Stark, and State of Illinois, have invented certain new and useful Improvements in Extension Step-Ladders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to extension step-ladders, and consists of a novel arrangement for strengthening and bracing them when extended.

In the drawings—

Figure 1 is a perspective view.

Figure 2 is a side or edge view; and

Figures 3 and 4 are views of parts detached.

I construct my extension step-ladder, A, in two parts, B C, which are hinged together, as shown in figs. 1 and 2, so that it may, when desired, be used as an ordinary or common step-ladder. The sides of the lower part, B, I construct of two pieces, connected at both ends, and slightly curved between, as clearly shown in the same figures, and make them of any length desired. Between these sides I place the steps *a*, so as to connect the sides, as shown in fig. 1. The upper part, C, which I use for a support for the lower part, B, as shown in fig. 1, when only a common step-ladder is required, I make in the form of an ordinary ladder, and hinge it to the lower part, B, by hinges D, as shown in figs. 1 and 2. The form of these hinges is clearly shown in fig. 3. I make their leaves, *i*, long, so that several screws may be used in fastening them in place, so as to hold their position firmly. These hinges D may turn on the same pivot, by making a bolt, *b*, sufficiently long to extend from one side of the ladder to the other, and providing it with a head on one end and a screw-thread for a nut at the other. I prefer hinging the parts of my step-ladder in this way, but, if desired, a single bolt may be used for each hinge.

To the bolt *b*, so as to move easily about it, I attach a truss, E, made in the form of the letter A, out of three pieces, *c d e*, the pieces *d* and *e* forming the angle at *f*, and *c* the cross-piece for tying and bracing them. The lower sides of the projecting ends of the pieces *c d*, I cut so as to be parallel with the sides of the ladder when the truss E is lying lengthwise with it, having made the pieces *c d* long enough, when so cut, as to be nearly of the same width from outside to outside as the interior of the ladder, and to these sides I attach, by screws or other suitable means, metal straps *g*, provided with an eye at their lower end, for the bolt *b* to pass through, the eye in the straps *g* being sufficiently large to allow the truss E to swing easily about the bolt *b*.

About midway between the ends of the parts B C of the ladder, I place metal loops F, provided with an eye, *h*, and formed as shown in fig. 4. And through the head *f* of the truss E, I put a bolt, and provide it at each end with an eye, *p*, and connect the eyes of the loops F with the head of the truss by chains G, making the chains of the requisite length to be stretched taut when the ladder is extended, as shown in fig. 2. To the upper part, C, and near its lower end, I place a staple, with a hook to catch into an eye, *q*, as shown in fig. 2.

It is obvious that in the place of the loops F, a bolt may be used, with an eye; but as the ladder is made light, the boring of holes in its sides would weaken it too much.

In using my step-ladder, extended, it is only necessary to place the parts B C in a straight line, as shown in fig. 2, and engage the hooks *q*. The truss E, in connection with the chains G, will at once take the position shown in the same figure, and thoroughly brace and securely hold the parts together, so that the ladder will be nearly as firm and quite as safe as though its sides were made of continuous pieces.

In this way I am able to make a cheap, convenient, and light extension step-ladder.

Having thus described my invention, what I claim, is—

An extension step-ladder, consisting of the hinged parts B C, truss E, and chains G, constructed and arranged substantially as herein described.

G. W. PACKER.

Witnesses:

F. H. WHITAKER.

C. M. S. LYON.