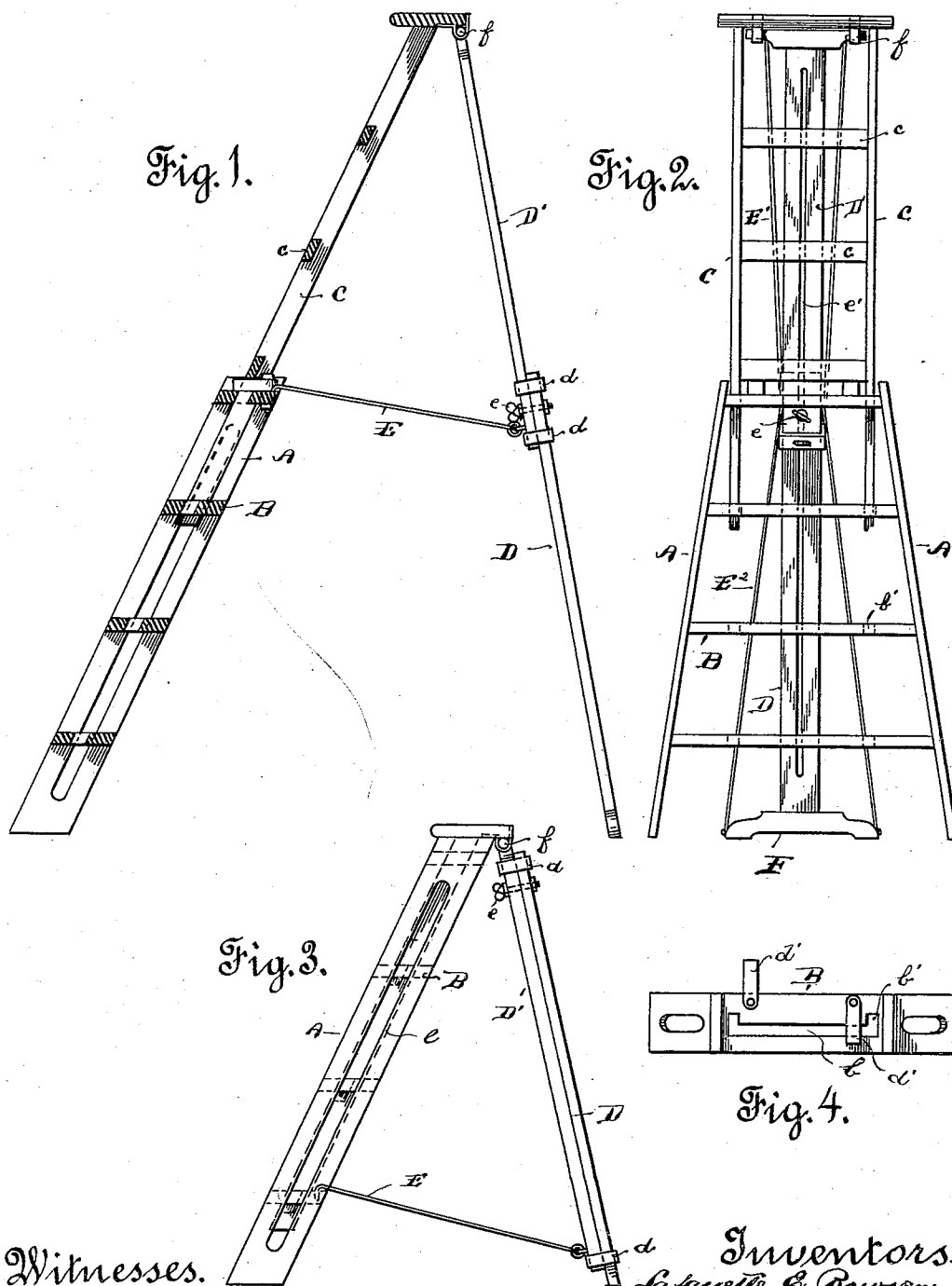


(No Model.)

L. E. & A. E. BOWSER.
STEP LADDER.

No. 479,051.

Patented July 19, 1892.



Witnesses.

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UNITED STATES PATENT OFFICE.

LAFAYETTE E. BOWSER AND ASBURY E. BOWSER, OF SAN FRANCISCO,
CALIFORNIA.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 479,051, dated July 19, 1892.

Application filed July 20, 1891. Serial No. 400,058. (No model.)

To all whom it may concern:

Be it known that we, LAFAYETTE E. BOWSER and ASBURY E. BOWSER, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Step-Ladders; and we do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

Our invention has relation to certain new and useful improvements in step-ladders, which consist in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings, and described and pointed out in the specification.

The object of our invention is to provide an extensible step-ladder adapted for painting, household, and other purposes which shall be simpler in its construction, less expensive, and more durable than any ladder heretofore known to us.

Referring to the drawings forming a part of this specification, wherein similar letters of reference denote corresponding parts, Figure 1 is a vertical sectional view in elevation showing the ladder extended; Fig. 2, a front view in elevation; Fig. 3, a side elevation of the ladder when closed, and Fig. 4 a detail.

The letter A is used to indicate the side pieces of the ladder proper, and B the usual steps thereof, which are provided with the longitudinal opening *b*, intersected by the rearwardly-extending opening *b'*, which may properly be termed "enlarged termination of opening *b*." Between the side pieces A or within the ladder proper slides or works the upper half or extensible portion of the ladder, the tenons C of which work within the enlarged portion *b'* of step-opening *b* as the same moves up or down. The upper extensible portion of the ladder we provide with rungs or steps *c*, which pass through the opening *b*, formed in steps B. The steps or rungs of the extensible portion correspond in distance apart with that of the ladder-steps, so that when the upper portion is closed with in the ladder proper the upper rungs or steps *c* will not interfere with the ladder-steps.

The stud or support for the ladder is represented by D, which is united to the movable or extensible portion D' by means of guide-plates *d*. As the ladder is extended the upper portion is held at any desired position or height by means of sliding or pivoted rests *d'*, which are secured to ladder proper at the top, preferably, and are moved beneath the step or rung of the extensible portion, thereby closing the step-opening *b*, as shown in Fig. 4, and preventing the downward movement of the extended portion, thus holding the same at any given height. The portion D' of the support D moves upward with extensible portion of the ladder and is firmly held at any position by means of thumb-screw *e*, which slides within the grooves *e'*, formed in support D and portion D'. This upper portion D' is pivotally secured to extensible section of the ladder, as shown at *f*, thus permitting of the whole, when closed, being folded together. By means of connecting-rod E, which is pivotally secured to section D' of the support and to lower section of the ladder, the rear support is prevented from slipping outward when the ladder is used. In place of a rod for this purpose we may use chains, &c.

In order to give greater firmness to the ladder-supports and ladder, more especially when the same is extended, we provide the brace-wires E' E², the former of which is secured to the top of movable section D' and run inwardly therefrom to bottom thereof, to which they are fastened, while brace-wires E² are secured to top of stationary section D and run outwardly therefrom and are secured to base-piece or stand F.

Our ladder may be extended to a distance nearly double its usual height—that is to say, if the ladder proper is six feet it may be extended to the height of eleven feet—thus adapting the same readily to varying sizes, inasmuch as by means of pivoted rests *d'* and thumb-screw *e* the movable sections may be held at any given point.

Having thus described our invention, what we claim as new, and desire to secure protection in by Letters Patent of the United States, is—

1. The combination, with an extensible step-ladder, of the sliding ladder-support piv-

otally secured thereto, thumb-screw working
in an opening formed in said support and
adapted to hold the sections securely together,
and of the brace-wires for holding the ladder-
5 support firm, as and for the purpose set forth.

2. The combination of a permanent section
of a step-ladder, a sliding or telescoping upper
section moving in an elongated slot in the
lower section, a hinged support pivoted at the
10 upper end to said sliding section and provided
with an elongated slot, a lower support pro-
vided with an elongated slot, a set-screw pass-
ing through the registering slots of the two
supports, guide-loops secured to the lower
15 support, a transverse rod having one end piv-
otally secured to the upper support and its

opposite end connected to the lower section
of the ladder, oblique brace-rods having their
extremities secured to the upper and lower
ends of the upper support, and similar rods 20
having their upper extremities secured to the
upper end of the lower support and their
lower ends to the base-piece thereof, substan-
tially as set forth.

In testimony whereof we affix our signatures 25
in presence of two witnesses.

LAFAYETTE E. BOWSER.
ASBURY E. BOWSER.

Witnesses:

N. A. ACKER,
J. W. KEYS.