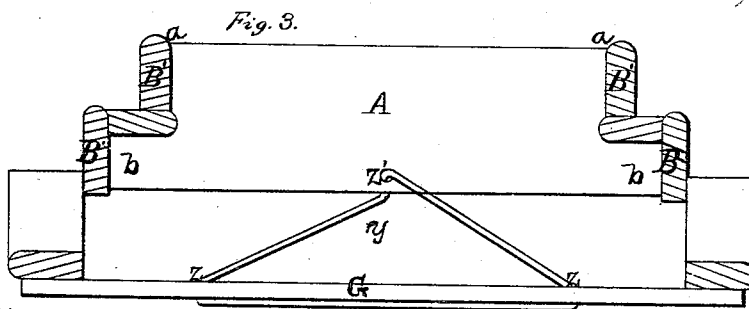
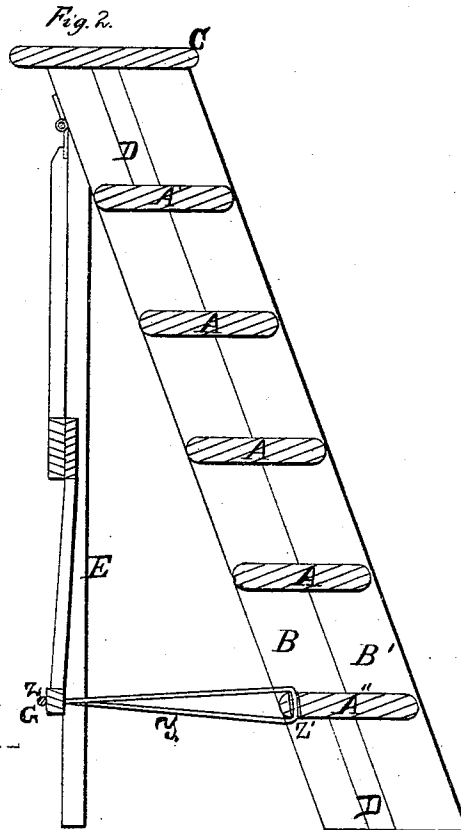
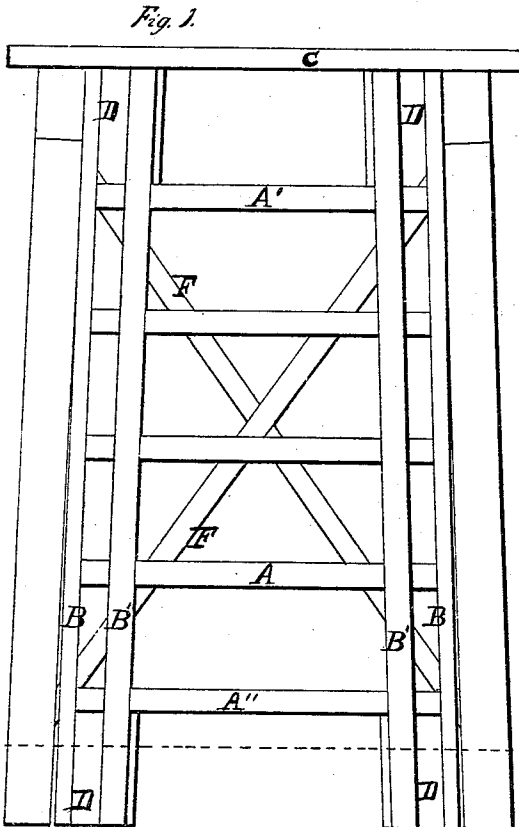


G. HIGMAN.
Step-Ladders.

No. 148,699.

Patented March 17, 1874.



Witnesses.
Chas. B. Steele
Phil. C. Hosi.

Inventor.
George Higman
Chipman Hosmer & Co.
Atlys

UNITED STATES PATENT OFFICE.

GEORGE HIGMAN, OF MUNCIE, INDIANA.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. 148,699, dated March 17, 1874; application filed February 21, 1874.

To all whom it may concern:

Be it known that I, GEO. HIGMAN, of Muncie, in the county of Delaware and State of Indiana, have invented a new and valuable Improvement in Step-Ladders; and do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front view of my step-ladder. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section of the same.

This invention has relation to the construction of step-ladders; and consists in the construction and novel arrangement of the brace-blocks securing the outside and inside rails together below the lowest step, and between the second step and the top of the ladder.

The object of the present invention is to secure, in the construction of step-ladders, strength with lightness and economy of material.

In the accompanying drawings, the letter A indicates the steps of the ladder, each of which has a rectangular notch cut in its front corners at *a*. In the manufacture of the steps, no material need be lost in cutting the notches, as they are made half the width of the step, and the material cut from the end of one step to form its notch may be left to form the extension *b* of the next step. B indicates the outer rails, which are secured to the ends of the extensions *b* of the steps. B' designates the inner rails, which are secured to the ends of the notched and shortened portion, and run in planes parallel with, but inside of, the planes of the outer rails. The front edges of the notches *a* are cut obliquely, or in a beveled form, to fit up closely and accurately against the oblique rear edges of the rails B', thus serving to brace and strengthen said rails. These rails are channeled at intervals to receive the ends of the shortened or notched

portion of each step, thus serving, in turn, to brace up this front portion, which receives the main pressure when the ladder is in use. C indicates the top step or platform of the ladder, secured to the ends of the four rails. Between the platform and the second step, A', are placed the short transverse boards or blocks D, which abut against and are secured to the rear edges of the inside rails and the inside faces of the outer rails. In a similar manner, the transverse brace-boards D below the lower step A'' are secured to the inner and outer rails of each side, and extended down even with the lower ends of said rails. In this way the slender side rails are firmly connected and braced at their upper and lower ends, when, without such bracing, they would be weak and unsteady. E indicates the hinged standards in the rear of the step-ladder. These are connected and braced by the oblique cross-bars F F and the transverse bar G, the height of the latter being even with that of the lower step. Perforations *z z* are made through this bar G near its ends for the passage of the coupling-cord *y*, and through the middle of the rear portion of the lower step, at *z'*, for the same purpose. The cord is thus made to assume a triangular position, and its oblique lengths *x x*, running from the perforation *z'* to the holes *z z*, serve to firmly brace the feet of the standard.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with the notched steps, parallel rails, and top board, of the transverse brace-boards D, between the second step and top, and below the lowest step, constructed and arranged as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE HIGMAN.

Witnesses:

J. A. WACHTELL,
W. BROTHERTON.