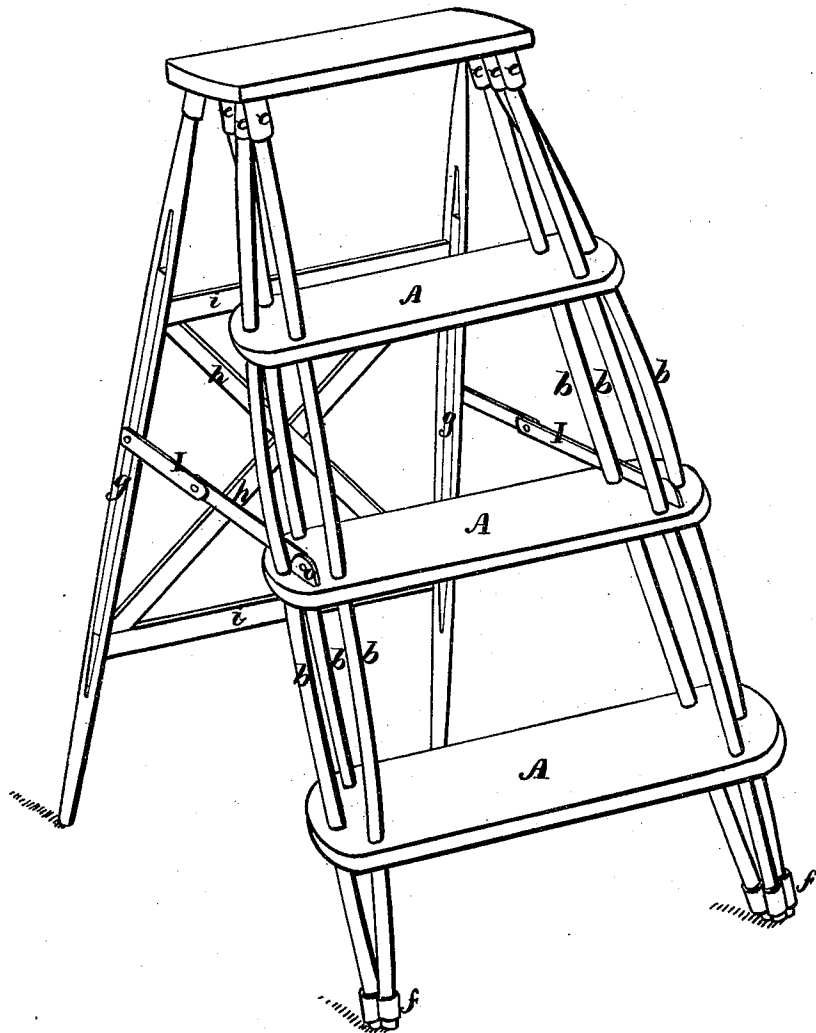


E. A. STOCKTON.
STEP-LADDER.

No. 178,345.

Patented June 6, 1876.



Witnesses
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UNITED STATES PATENT OFFICE

EDWARD A. STOCKTON, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. **178,345**, dated June 6, 1876; application filed March 13, 1876.

To all whom it may concern:

Be it known that I, EDWARD A. STOCKTON, of San Francisco city and county, State of California, have invented Improvements in Step-Ladders; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to certain improvements in step-ladders, by which I am able to render them exceedingly strong and durable, and at the same time more attractive in appearance than the ordinary step-ladders.

In constructing my improved step-ladder I use three round bars or rods to form each upright side bar or step support. These rods I pass through holes properly arranged in the ends of the steps, and I then draw the ends of all three bars together at top and bottom, and secure them by suitable strong fastenings so as to form them into a triple truss.

A side support for the steps of step-ladders has heretofore been made of two straight bars, which passed through holes in the ends of the steps, but they did not form a truss, and a triple truss has been formed by partially splitting a board in three parts and spreading the parts in the form of a truss, but the bars of this support were secured against the ends of the steps, and were liable to be wrenched off by frequent strains upon the ladder. I also provide an improved and convenient hinged bar for retaining the ladder-brace at the proper spread, and also an improved system of bracing the ladder-brace, all of which is more fully described in the following specification.

Referring to the accompanying drawing, the figure is a perspective view of my improved ladder.

A A A are the steps of a step-ladder. The side bars which support these steps in their proper relative positions are each composed of three round wooden bars, *b b' b''*. The ends of the steps are rounded off, as shown, and three round holes, corresponding in size with the size of the bars *b b' b''*, are bored at each end of the steps A A A in a triangular form,

with two inner and one outer hole. These holes are necessarily bored at an angle in order to permit the steps to be horizontal, while the bars or rods stand at an angle, and in order to accommodate the curve of the rods where they are bent to form the truss at top and bottom, I prefer to bore the holes at varying angles to accommodate the curve of the rods.

The rods *b b' b''* are driven through the holes in the steps, and the steps are secured at their proper places by screws or nails, which pass through them into the rods, after which the upper ends of the rods are drawn together and secured in metallic sockets *e e e*, which are fastened to the under side of the upper step. The lower ends of the rods are then drawn together and secured in the rings of a triple ferrule, *f*, thus forming the three bars into a triple truss, two bars of which are inside, and one outside, forming a brace-rod.

The sockets *e e e* are united together in a line, and are secured across the end of the upper step. The inside braces enter the outside sockets, while the middle brace enters the middle one. The lower ends of the bars pass entirely through the ferrules *f* and rest upon the floor.

I am aware that a shoe provided with sockets has been used to receive the lower end of side bars, but the shoe rested upon the floor, and was liable to slip, whereas with my ferrules the ends of the bars form the bearing.

The bars or legs *g g*, which form the ladder-brace, are split nearly their whole length by means of a saw, and the two parts are then spread apart, as shown, so as to admit the ends of the cross-braces *h i*, thus providing a simple, strong, cheap, and exceedingly neat arrangement for bracing and stiffening these brace-legs.

The hinged bars I I, which limit the spread of the two parts of the ladder, has one end secured to the rear brace, while the other or forward end is secured to a lug, *o*, which is attached to one of the steps A near its front edge, so that when the bar is straightened out it will strike the back edge of the step, and thus avoid the necessity of forming a knuckle at the joint. I thus provide a strong and substantial step-ladder, which presents a very

neat appearance, and which can be cheaply manufactured.

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

1. A side support for the steps A A A of a step-ladder, consisting of three bars or rods, *b b' b''*, passing through corresponding holes in the ends of the steps, and having their ends drawn together and secured in the sockets *e e e* and triple ferrule *f*, substantially as and for the purpose above described.

2. In combination with a step-ladder, having its side supports composed of two or more bars or rods, *b*, the rings or ferrules *f* for retaining their lower ends, and permitting the

ends of said bars or rods to rest upon the floor, substantially as above specified.

3. The rear brace bars or legs *g g*, split as described, and having the ends of the cross-braces *h i* secured in the split, substantially as and for the purpose described.

4. The hinged bars I I, having one end fast-end to the rear brace bars or legs *g g*, while its opposite end is attached to a lug, *o*, near the forward edge of the step, so that the rear edge of the step will serve to prevent the bars from buckling downward.

EDWARD AGUSTUS STOCKTON.

Witnesses:

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