

UNITED STATES PATENT OFFICE.

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STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 273,782, dated March 13, 1883.

Application filed September 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM VARNUM, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Step-Ladders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to step-ladders; and it consists in providing improvements in the construction and operation of the brace which holds the props or legs in position.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a perspective view of a step-ladder constructed in accordance with my invention. Fig. 2 is a detail of construction, being a section view on the line *x* in Fig. 1. Fig. 3 is a perspective view of the brace-clamp. Fig. 4 is a like view to Fig. 2 and shows a modification in construction.

A is the body of the ladder. A' is the step on which the brace-clamp is fixed. B B are the props or legs, and B' a cross-bar connecting them. C is the brace; D, the brace-clamp having a cam-lever, E, to effect the clamping.

The construction shown is as follows: The body of the ladder and the manner of hinging the props thereto form no part of this invention, which relates wholly to the brace which holds the props in place and the devices for its adjustment. The office of the brace C is to hold the props out, as shown in Fig. 1, and prevent their walking in toward the body of the ladder, as they will, by the movement of the person upon the ladder. Such braces are common in step-ladders, and their function is well known, and hence the application of a brace for the purpose just named forms no part of this invention. The brace C is hinged to the cross-bar B' in any way desirable. The opposite end of the brace passes through a clamp, D, on the step A', and can be clamped by a cam-lever, E, at various points, so as to hold the props B firmly at various degrees of extension. The end of the brace is provided with an enlargement, *c*², which prevents it slipping back through the clamp. The brace, when clamped, is held between a bridge, *d*, on the iron D and the lobe of the cam-lever E. The bridge *d*, when the iron D is in place on

the step, serves as a facing to the edge of the step A and affords a hard or solid bearing-point for the brace when gripped by the clamp. The back of the brace C may be provided with a metallic facing, *c*¹, as shown in Fig. 2, to afford a bearing-surface for the cam E; but, as the brace will generally be made of hard wood, this plate *c*¹ can be omitted, if desired. The clamp being on the step of the ladder in place of on the cross-bar B', as has been done, the props can be adjusted and secured by the operator without having to stoop down and reach behind the ladder, and when the ladder is a tall one the operator would have to leave the front of the ladder and go around to the props in order to adjust the clamps. It is often difficult to go to the props or reach behind the ladder, on account of surrounding objects; but in using my device it is wholly unnecessary, as the props can be adjusted and secured from the front of the ladder. When the ladder is folded up the brace is unclamped and runs up through the iron D and folds up about parallel with the props. When in this position it can be again gripped by the clamp, and it will then prevent the props swinging out while lifting the ladder about.

In Fig. 4 the lobe of the cam is provided with notches *e*, and a spring-pawl, *e*¹, engages with them and prevents the cam coming loose. When it is desired to loosen the cam the spring can be depressed; but this can only be applied at one point on the brace conveniently, and I do not think it will be found necessary, as the cam will not easily become disengaged if well pushed down.

What I claim as new is—

1. In a step-ladder, the combination, substantially as shown, of the brace C; hinged on the prop, the clamp-iron D, and cam-lever E on the step A', said brace passing through said clamping device and provided with an enlargement, *c*², at its upper end.

2. In a step-ladder, a clamp for the brace, consisting of the iron D, with bearing-bridge *d*, and a cam-lever, E, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

WM. VARNUM.

Witnesses:

JAS. K. HALLOCK,
W. S. BROWN.