UNITED STATES PATENT OFFICE.

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LADDER-STEP BRACKET.

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To all whom it may concern:

Be it known that I, LEON N. BOURDEAU, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Ladder-Step Brackets, of which the following is a specification.

My invention has reference to ladder-step brackets, and has for its purpose to provide a rigid and substantial connection between the end of one of the steps of a step-ladder and the leg or stile thereof. My device is simple in construction and can be secured in place without the use of any screws, bolts or other fastening means aside from those contained in the bracket itself. It can thus be conveniently utilized in repairing step-ladders in which the end of the step has been loosened, but can be advantageously employed in connecting the parts of the ladder when it is first constructed.

It is difficult to overcome the tendency of the step to become loosened at the point where it is connected with the side-pieces of the ladder, this tendency being caused not only by the weight of the person using the same, but from the constant twisting strain to which the step is subjected by reason of the weight being unequally distributed. By the use of my invention a solid, permanent joint is produced, with the danger of the step becoming loosened reduced to a minimum.

In the drawings: Figure 1 is a plan view of my invention, as it appears in position, with a portion of the ladder stile in cross-section. Fig. 2 is a similar view with the device in position to be attached to the stile. Fig. 3 is a sectional longitudinal of the stile and step. Fig. 4 is a front elevation of my device, detached.

1 and 2 represent a pair of parallel clamp-plates, united by a pair of parallel bars 3 and 4, the plates 1 and 2 being disposed obliquely with relation to the bars 3 and 4, so as to conform to the position of the ladder legs when they are in operative position, with the bars 3 and 4 in a horizontal position. The bar 3 is provided at its forward edge with a series of teeth 5, projecting upwardly, and the forward edge of the bar 4 is provided with similar downwardly projecting teeth 6.

At their upper and lower ends the plates 1 and 2 are provided with blades 7 and 8, and the outer edges of said plates are provided with projections 9, preferably separated from the plates 1 and 2 by grooves 10. The inner edges of the bars 3 and 4 are projected into flanges 11, offset inwardly from said bars and adapted to enter a channel 12 on the inner face of the stile 13, such channel being usually provided in devices of this class, to receive the end of the step.

The bracket is preferably formed of malleable iron, or other metal possessing a limited degree of flexibility, and when formed the engaging parts of the plates 1 and 2 are spread, or bent outwardly, so as to be positioned on the stile of the ladder, as shown in Fig. 2. The clamp-plates are then caused to engage the sides of the stile closely, with the blades 7 and 8 forced into the same, assisting in preventing the bracket from slipping downwardly on the stile. This is chiefly prevented, however, by the flanges 11, in position in the channel 12. When the plates 1 and 2 tightly embrace the stile 13 the projections 9 are bent inwardly against the outer face of the stile, as shown in Fig. 1, preventing any movement of the bracket which would cause a dis-engagement of the flanges 11 with the recess 12. The end of the step 14 is then placed in position between the bars 3 and 4, as shown in broken lines in Fig. 3, whereupon said step is brought into a horizontal position, causing the teeth 5 and 6 to enter the lower and upper faces thereof, and hold the same securely from movement. The same result can be produced while the step is in a horizontal position, by tipping the bracket at an angle therewith, until the end of the step can be inserted between the rows of teeth.

In case the bracket becomes slightly loosened through use, the parts can be quickly driven tightly together, in the same manner as when the bracket is first placed in position. It will be seen, as hereinbefore stated, no outside fastening means are required to secure the bracket in position. Step-ladders equipped throughout with said devices will possess very durable qualities.

What I claim as my invention and desire to secure by Letters Patent of the United States, is:

1. A device of the class described, comprising a pair of clamp-plates, provided with means for engaging the stile of a step-
ladder, a pair of bars uniting said clamp-plates, and provided with coöperating rows of teeth capable of engaging opposite faces of a step-ladder step, said rows of teeth being positioned in off-set relation to each other.

2. In combination with the stile of a step-ladder, provided on its inner face with a transverse channel; a pair of parallel bars provided on their outer edges with coöperating rows of teeth, and projected at their inner edges into engagement with said channel; and a pair of clamp-plates uniting said bars, extending longitudinally of said stile above and below said bars, and provided on their outer edges with projections adapted to engage the outer face of the stile and hold said bars in engagement therewith.

3. In combination with the stile of a step-ladder, provided on its inner face with a transverse channel, a pair of clamp-plates provided with means for engaging the edges and outer face of said stile, a pair of bars uniting said clamp-plates, adapted to receive the end of a step-ladder step and provided with coöperating means for engagement therewith, and projections on said bars adapted to enter said channel and prevent movement of said clamp-plates longitudinally of said stile.

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

LEON N. BOURDEAU.

Witnesses:
W. N. HASKELL,
A. J. MEEHAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."