D. E. WHITE.

LADDER RUNG.

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1,218,144.

Patented Mar. 6, 1917.

Fig. 1.

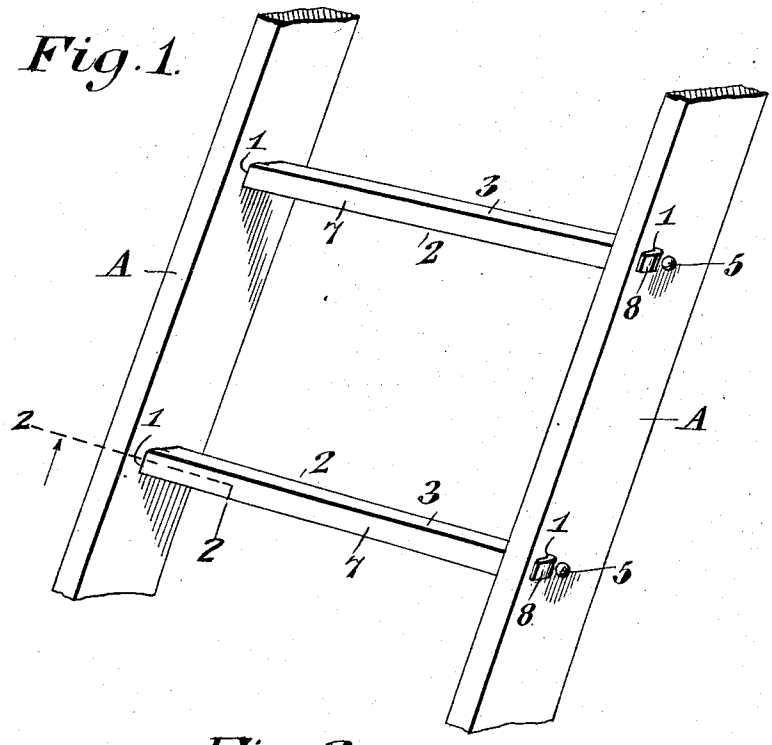


Fig. 2.

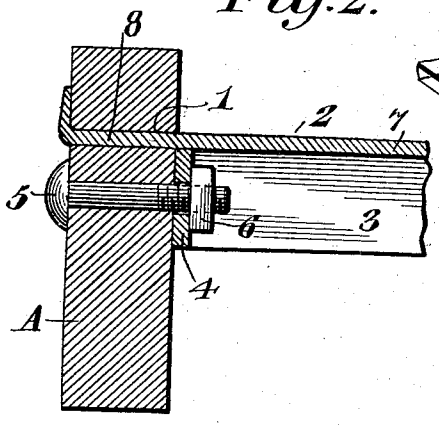
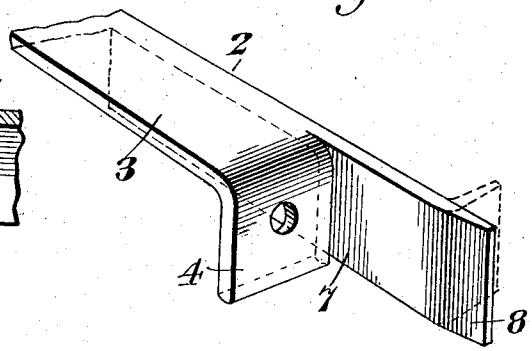


Fig. 3.



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UNITED STATES PATENT OFFICE.

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LADDER-RUNG.

1,218,144. Specification of Letters Patent. Patented Mar. 6, 1917.

Application filed June 5, 1915. Serial No. 32,394.

To all whom it may concern:

Be it known that I, DAVID E. WHITE, citizen of the United States, residing at Winchester, in the county of Jefferson and State of Kansas, have invented a new and useful Ladder-Rung, of which the following is a specification.

This invention relates to an improvement in rungs for ladders, and the object is to provide means for securing the rung to the side rails of a ladder whereby a rigid connection is formed between the side rails, and the rung prevented from becoming disengaged from the rails.

The invention consists of certain novel features of construction and combinations of parts which will be hereinafter described and pointed out in the claims. It is evident that slight changes may be made in the form and arrangement of the several parts described without departing from the spirit and scope of the invention, and hence I do not wish to be limited to the exact construction herein set forth.

In the accompanying drawings,—

Figure 1 is a perspective view of a portion of a ladder showing rungs applied to the side rails.

Fig. 2 is a horizontal sectional view through a side rail and rung on the line 2—2 of Fig. 1.

Fig. 3 is a detail perspective view of an end of a rung.

A represents the side rails of a ladder which are provided with vertical slots 1 arranged at suitable intervals throughout the length of the rails. The steps or rungs 2 are preferably made of angle iron and the horizontal portion 3 of the rung, which forms the tread flange or support for the foot, has the ends thereof bent at right-angles to provide attaching ears 4 so that the right angular portions 4 engage the inner surfaces of the rails A.

Bolts 5 pass through the rails and through the right angular portions 4 for fastening the rungs to the rails and nuts 6 are screwed upon the bolts 5 for maintaining the rungs and rails together. The vertical portions or reinforcing flanges 7 of the rungs have the ends or tongues 8 thereof extending through the vertical slots 1 of the rails A, and the terminals of the ends 8 are bent at right angles to provide retaining lips and engage the exterior surfaces of the rails for fastening the rungs to the rails.

With a construction of this character it is practically impossible to remove a rung from the side rails by the weight of a person climbing or using the ladder as the terminals of the end portions 8 are bent against the exterior surfaces of the rails after they have passed through the rails. The ends 4 of the horizontal portions 3 are brought into engagement with the inner surfaces of the rails and are fastened thereto by means of bolts 5 and nuts 6 so that the rails are confined between the ends 4 and 8 of the rungs. It will be seen with such construction a very rigid ladder is provided, and the rails cannot move either longitudinally or laterally, and there is no danger of the rungs becoming loose as the end portions 8 pass through elongated or vertical slots in the side rails.

As the tread and the reinforcing flanges, 3 and 7 respectively, lie in different planes, and as the attaching ears 4 are turned downwardly to support the tread flange 3, and the lips or tongues 8 are turned forwardly out of transverse alinement with the ears 4, the improved ladder rung is supported against swaying or bending in any direction, and the side rails A are consequently held rigidly from swaying laterally, and in a compact solid structure.

What is claimed is:—

1. A ladder rung comprising a length of angle iron having a tread flange for engagement between the rails of a ladder, and provided with depending ears at its opposite ends for securement against the inner sides of the ladder rails, and having a vertical reinforcing flange extending across the ladder rails and provided with longitudinally extended tongues engaging through the said rails and being overturned against the outer faces of the rails to hold the reinforcing flange from buckling.

2. A ladder rung comprising a length of angle iron having a horizontal tread flange, and a vertical reinforcing flange, each end of the tread flange being turned at right angles to provide flat attaching ears for engagement against the inner sides of the rails of a step ladder, each end of the reinforcing flange being provided with a longitudinally extended tongue adapted for passage through the rails, and having lips on

their outer ends turned over in offset relation to said attaching ears, and adapted to engage against the outer sides of the rails, said attaching ears and said lips extending in different directions from the ends of the angle iron to support the rung against swaying or sagging in any direction.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

DAVID E. WHITE.

Witnesses:

HARRY E. MYERS,

JAMES S. GIBSON.

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