April 10, 1945. E. J. SCHNEIDER 2,373,346

JACOB'S LADDER

Filed Aug. 5, 1943

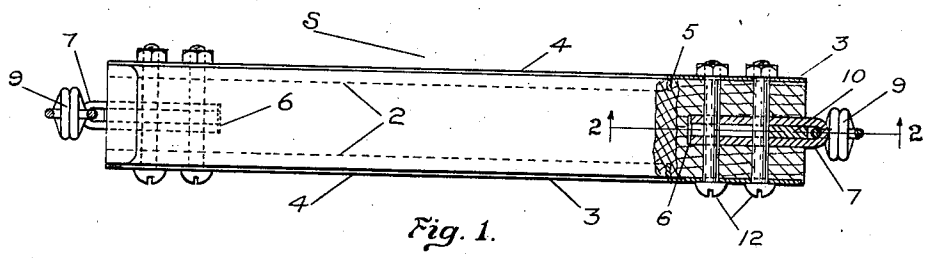


Fig. 1.

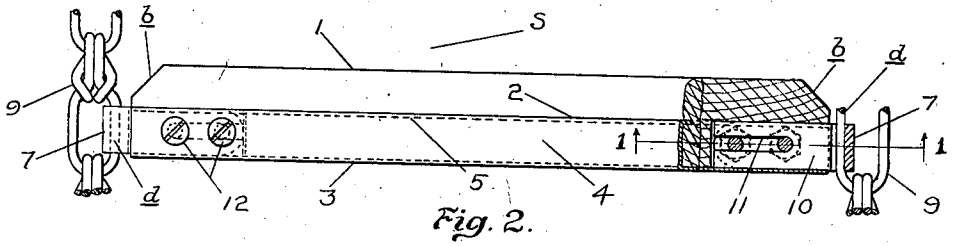


Fig. 2.

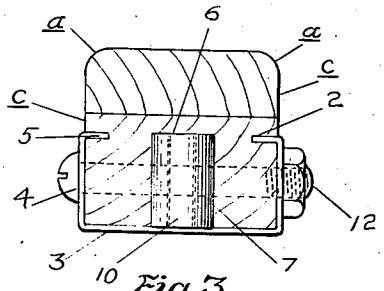


Fig. 3.

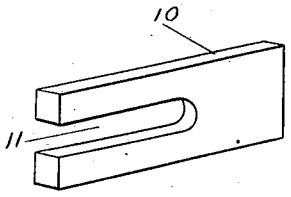


Fig. 4.

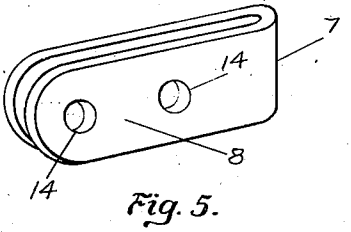


Fig. 5.

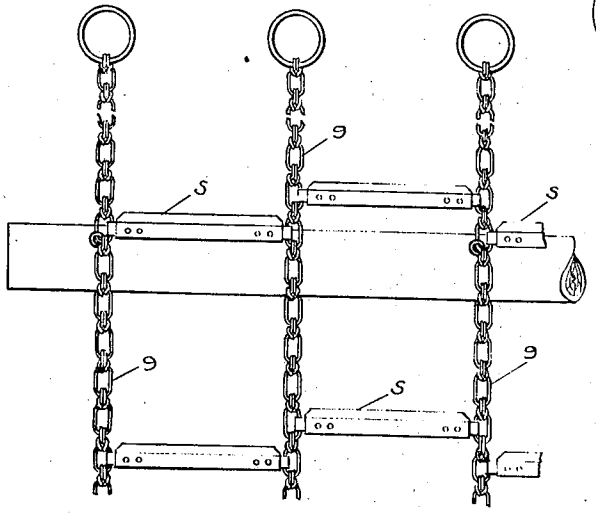


Fig. 6.

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JACOB'S LADDER

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Application August 5, 1943, Serial No. 497,470

9 Claims. (Cl. 228—40)

This invention relates to improvements in Jacob's ladders, and it is an object of the invention to provide a ladder of this kind including a rung or step constructed in a manner whereby it may be effectively anchored to the suspending members or chains of the ladder and wherein the construction of the rung or step and its connecting means are such whereby a maximum of strength is provided to withstand the load imposed upon the rung or step.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved Jacob's ladder whereby certain important advanages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:

Figure 1 is a fragmentary view partly in plan and partly in section of a Jacob's ladder constructed in accordance with the invention, the section being substantially on the line 1—1 of Figure 2;

Figure 2 is a view partly in front elevation and partly in section of the structure illustrated in Figure 1, the section being on the line 2—2 of Figure 1;

Figure 3 is an end view, on an enlarged scale, of the structure as illustrated in Figures 1 and 2;

Figure 4 is a view in perspective of the spacer plate, unapplied;

Figure 5 is a view in perspective of the link, unapplied; and

Figure 6 is a fragmentary view in elevation on a small scale illustrating an upper portion of the Jacob's ladder.

In the embodiment of the invention as disclosed in the accompanying drawing, the rung or step S comprises a body member 1 of standard air-dried wood, such as white ash, birch, hickory, cypress, fir or maple. The upper longitudinal marginal portions of this body member 1 are rounded, as at *a*, to facilitate grasping by the hands while the end walls of the body member 1 have their upper portions inwardly beveled, as at *b*, on an angle of substantially 45 degrees.

The side walls or faces *c* of the rung or step S at substantially the center thereof are provided therealong from end to end with the straight grooves 2 open at their extremities and the part of the body member 1 below these grooves is adapted to be snugly received within a channel member or housing 3 coextensive in length with the length of the body member 1.

As herein disclosed, the channel member or housing 3 is U-shaped in cross section from end to end with its side walls 4 provided along their upper or free longitudinal margins with the inwardly disposed flanges 5 which are slidably received within the grooves 2, whereby the channel member or housing 3 and the body member 1 are effectively assembled.

The channel member or housing 3 is preferably formed of 20 gauge sheet metal to assure effective protection to the rung or step S against fire. It is also to be noted that the body member 1 extends a material distance above the applied channel member or housing 3 to permit the same to be grasped by the hand without the hand coming in contact with the metallic channel member or housing 3 which is of especial importance when the ladder is being used in low temperatures.

Each end of the body member 1 at its transverse center is provided in its under or bottom face with a longitudinally disposed groove 6 open at its outer end and into which is adapted to be snugly engaged an elongated coupling link 7 substantially U-shaped in form. This link 7 is preferably of 12 gauge steel and is of such length that when the free ends of the arms 8 of the link 7 are in contact with the inner or closed end of the groove 6, the base or connected end portion of the link 7 extends slightly beyond the adjacent end of the body member 1 to provide an eye in which is received a side bar *d* of a link 9 of a suspender or chain comprised in the ladder assembly.

Snugly fitted between the arms 8 of the connecting link 7 is a spacer plate 10 of steel of desired gauge and which is of a length substantially equal to the length of the groove 6. The inner or inserted end portion of this spacer plate 10 is provided in its central part with a longitudinally disposed slot 11 extending along the major portion thereof and open at the inner end of the plate. Directed through this slot 11 are the rivet members 12 or kindred fastening elements which are also disposed through the adjacent portion of the body member 1 and through the suitably spaced openings 14 provided in the side arms 8 of the link 7 and it is to be noted that one of the rivet members 12 or the like is immediately adjacent to the inner or closed end of the slot 11.

By the use of the spacer plate 10, it is assured that at no time will the connecting link 7 unduly bind upon the side bar *d* of a link and

said spacer plate also provides a means to prevent undue wear at the end of a step or rung S by action of a side bar *d* of a link.

From the foregoing description, it is thought to be obvious that a ladder rung or step constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

What is claimed is:

1. A step of the class described comprising a relatively long solid body member, a relatively narrow groove formed in the underside of the body member at the opposite ends and upon the longitudinal center thereof and opening through the ends of the body member and closed at its inner end by the material of the body, and a connecting link of greater length than and extending into and secured within each of said grooves, said connecting link having a portion extending outwardly beyond the adjacent end of the body member to provide a connecting eye lying outwardly from the adjacent end of the body.

2. A step as set forth in claim 1, wherein the connecting link comprises an elongated U-shaped member with the free ends of the side arms of such member disposed inwardly of the groove.

3. A step as set forth in claim 1, wherein the connecting link comprises an elongated U-shaped member with the free ends of the side arms of such member disposed inwardly of the groove, and a spacer plate within the groove and solidly filling the space between the side arms of the member.

4. A step of the character described comprising an elongated body member having grooves in the end portions thereof in the underside of the body member and opening through the ends of the body member, an elongated U-shaped connecting link fitting within each of the grooves, the free ends of the link being inwardly disposed, said link being of a length to have its closed end extending beyond the adjacent end of the body member to provide a connecting eye, a spacer plate within the groove and between the side arms of the link, said plate being provided therealong with a slot, and securing members disposed through the body member, the arms of the link and through the spacer plate, one of said securing members being immediately adjacent to the inner end of the slot of the spacer plate.

5. The combination of a plurality of parallel chains, a plurality of rigid rungs, means for pivotally connecting each of said rungs between adjacent chains, each of said rungs comprising an elongated body member having grooves in the under surfaces thereof at opposite extremities of the rung and opening through the ends of the body member, and a connecting link extending into and secured within each of said grooves, said connecting link having a portion extending outwardly beyond the adjacent end of the body member to provide an eye to receive a side bar of a link of a chain.

6. A step structure of the character stated comprising a relatively long wood body having a groove cut in the underside at each end and opening through the end, each of the grooves being closed at its inner end, a link member comprising a centrally folded metal strip having the free ends extended into the groove, the over-all length of link being greater than the length of the groove into which it is extended whereby the folded portion is maintained outside the groove and extended beyond the adjacent end of the body to form an eye, and means extending through the body and each link for securing the link in the groove.

7. A step as set forth in claim 6, with a flat spacer member lying between the sides of the link and terminating at its outer end in the plane of the end of the body, the spacer functioning as a movement limiting means for an element extending through the eye.

8. A step designed to be mounted between a pair of spaced chains, comprising a relatively long body, a groove cut in the underside of the body at each end and opening through the adjacent end, a pair of links each comprising two spaced parallel flat members joined together at one end, each of said links having the free ends of the two members thereof extended into a groove, each link being of a length greater than the length of the groove into which it is extended whereby the joined ends of the two members thereof are maintained outside the adjacent end of the body forming an eye adapted to receive a side of a chain link.

9. A step of the class described comprising an elongated body member, grooves formed in the underside of the body member at the opposite end portions thereof and opening through the ends of the body member, a connecting link extending into and secured within each of said grooves, said connecting link having a portion extending outwardly beyond the adjacent end of the body member to provide an eye to receive a side bar of a link of a chain, the connecting link comprising an elongated U-shaped member with the free ends of the side arms of such member disposed inwardly of the groove, and a spacer plate within the groove between the side arms of the member, said spacer plate being of a length substantially coextensive with the length of the groove.

EDWARD J. SCHNEIDER.