COMBINATION STEP AND SCAFFOLD SHELF FOR LADDERS

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COMBINATION STEP AND SCAFFOLD SHELF FOR LADDERS

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[Diagram of the invention]
This invention relates to a ladder attachment and more particularly to a step and scaffold shelf for a ladder.

In the use of a conventional ladder, a worker frequently must stand for prolonged periods on a single rung. This soon causes discomfort and fatigue as the entire weight of the individual is carried by his arched shoulders.

The present invention is intended to eliminate this objectionable feature by providing a platform step having an enlarged foot receiving area. This effects a comfortable distribution of weight between the balls and heels of the feet, relieves the arches and leg muscles of undesirable pressures and strains, and provides a high degree of safety to the worker.

In addition, separate shelves may be attached to spaced rungs and a planked floor with its ends on the shelves to provide a scaffold. A clamp arrangement, foldable to an out-of-the-way position, serves to hold each end of the plank secured to the shelf on which it rests.

The shelf attachment is so constructed as to be applied on either side of a sloping ladder. When attached to the rear of a ladder, a chain attachment acts as a hanger depending from a high rung of the ladder and effects an increased safe load-carrying capacity.

An important object, then, of this invention is the provision of a shelf attachment arranged to be supported upon a sloping ladder on either side thereof.

Another object of the invention is the provision of a removable locked shelf attachment for a ladder.

Another and further object of the invention is the provision of a shelf attachment for a ladder which may form one end of a scaffold.

A still further object of this invention is the provision of a shelf attachment having a retractable mechanism for locking in place an end of a plank or other scaffold base.

A further object of the invention is the provision of a shelf attachment which is simple and inexpensive in construction, thoroughly safe, reliable and efficient in operation, strong, durable, of maximum load-carrying capacity, and conveniently applicable to and removable from a ladder.

Other and further objects and advantages of the invention will be more apparent from the following detailed description taken in connection with the accompanying drawings, in which,

Figure 1 is a perspective view of the device of this invention mounted on the front side of a tilted ladder;

Figure 2 is a view similar to Figure 1, showing the device mounted on the rear side of the tilted ladder;

Figure 3 is an enlarged side view, in elevation, of the step and scaffold shelf;

Figure 4 is a bottom view, in elevation, of the shelf showing the foldable scaffold clamp and;

Figure 5 is a fragmentary sectional view with parts in elevation, as seen when taken along a plane indicated by the line 5—5 of Figure 4 and showing the hook lock in operative position on a scaffold platform.

Referring now to the drawings, the step and scaffold shelf 10 of this invention is shown as being mounted on a ladder 11. The ladder consists of a pair of side rails 12, 12 and a plurality of spaced rungs 13.

A pair of substantially parallel spaced support members 14, 14 are preferably formed of angle iron in order to provide the necessary strength and rigidity. Each support member 14 has a base leg 15 from which a support leg 16 extends at an acute angle. The upper or free end of each support leg is formed into a hook 17 which is adapted to engage a rung 13 of the ladder.

A platform 18 is secured by welding, bolts, or other suitable means to the base legs 15, 15 of support members. A pair of stop members 19, 19 are secured, preferably by welding, to the underside of platform 18 so as to extend laterally from opposite sides substantially but not completely opposite each other.

It is to be understood, of course, that a bar or tubular member extending across the width of the platform may be used in the place of the stop members previously defined.

As shown in Figure 1, the step shelf is shown as being applied to the front side of the ladder 11. When so engaged, the hooks 17, 17 embrace a rung 13 with the stop members 19, 19 each abouting against an adjacent ladder rail 12. By reason of the angularity of the support legs 14, 14 in relation to the base legs 15, 15 and the weight of the platform 18, the shelf arrangement generally is maintained in the position shown. In order that the shelf attachment be secured to the ladder to avoid inadvertent disengagement, there is provided a lock for each hook 17. As the lock for each hook is alike only one will be described.

As best shown in Figure 3, a nut 20 is secured to one flange of the support leg 16 and an opening 21 provided through the leg in alignment with the threaded opening of the nut. A thumb-screw 22 is threaded through the nut to extend through an aligned opening 23 in the opposite leg or free end of the hook 17. If desired, one or both of the aligned openings 21 and 23 may be threaded thereby eliminating the nut 20. The above-described mechanism serves to lock the hooks to the engaged rung.

In Figure 2 is shown the arrangement when the shelf is attached to the rear side of the ladder 11. The arrangements shown in Figures 1 and 2 adapt themselves to the provision of a scaffold. When two ladders are arranged in laterally spaced relation with a shelf attached to each at the same or nearly the same height, a plank 24 or other long platform resting on the spaced shelves forms a scaffold. The stop members 19, 19 serve to hold the shelf platform shown in Figure 1 in substantially horizontal position. This arrangement is not present when the shelf engages the opposite or rear side of the ladder as shown in Figure 2. In order to hold the shelf platform horizontal and provide additional safety, a hanger chain 25 is provided. The free ends of the chain each have a snap buckle 26. The chain extends under the platform 18 and up through spaced openings 27 and 28. The ends of the chain are each passed over an upper rung 13 and snapped into a chain link below the rung.

To insure the locking of the plank 24 or other scaffold platform to each shelf 10, there is provided a hook member 29. The hook member is slidably mounted in spaced bearings 30 and 31, welded or otherwise secured to the underside of the platform 18 and so arranged as to locate the hook substantially along the centerline of the platform. A coiled spring 32 embraces the free end of the hook member and abuts against a cotter-pin 33 or like member. This spring normally retracts and holds the hook member in an out-of-the-way position, as shown in dotted lines in Figure 4. When the hook member is pulled forwardly and rotated approximately 90°, the spring pulls and holds the hook end over and against the plank 24. To insure against lateral movement, it is desired that the plank be of such a width as to engage
the chain 25 along one side and the angle bend 34, between the support legs 15 and 16, along its other side.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the appended claims.

I claim as my invention:

1. A shelf device adapted when mounted on a tilted ladder, having a pair of side rails and a plurality of rungs, as the support for one end of a scaffold platform, comprising a pair of substantially parallel support members each having legs arranged in angular relation, a hook at an end of each leg of a pair of legs on said support members for engagement over a rung of the ladder, a platform connected to the other pair of legs of said support members and extending away from said first mentioned pair of legs, and a hook member slidably connected to the bottom face of said platform between the support members and movable into and out of retracted positions, said hook being movable into engagement with one end of a scaffold platform to secure the scaffold platform on the shelf platform.

2. A shelf device adapted when mounted on a tilted ladder, having a pair of side rails and a plurality of rungs, as a support for one end of a scaffold platform, comprising a pair of spaced support members terminating in hook portions for engagement over a rung of the ladder, a shelf platform mounted on said members, a hook member having a mounting shank, spaced bearings carried by the shelf platform on the underside thereof between the support members for slidably carrying said shank, an abutment member on said shank adjacent the free end thereof, and a coiled spring embracing said shank between said abutment member and the next adjacent shank bearing, said hook member being movable out of a normally retracted position under said shelf platform to an extended position with the hook engaged over the side and margin thereof along the top of a scaffold platform resting on the shelf platform.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor</th>
<th>Date of Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>328,999</td>
<td>Ballmann</td>
<td>Oct. 27, 1885</td>
</tr>
<tr>
<td>567,755</td>
<td>Stillman</td>
<td>Sept. 15, 1896</td>
</tr>
<tr>
<td>960,565</td>
<td>Levander</td>
<td>June 7, 1910</td>
</tr>
<tr>
<td>1,045,099</td>
<td>Walker</td>
<td>Nov. 19, 1912</td>
</tr>
<tr>
<td>1,352,914</td>
<td>Plasclascoveite</td>
<td>Sept. 14, 1920</td>
</tr>
<tr>
<td>1,450,312</td>
<td>Stolworthy</td>
<td>Apr. 3, 1923</td>
</tr>
<tr>
<td>1,487,243</td>
<td>Jackson</td>
<td>Mar. 18, 1924</td>
</tr>
<tr>
<td>2,080,015</td>
<td>Snaddon</td>
<td>May 11, 1937</td>
</tr>
<tr>
<td>2,297,883</td>
<td>Glover</td>
<td>Oct. 6, 1942</td>
</tr>
<tr>
<td>2,376,529</td>
<td>Yarmolowich</td>
<td>May 22, 1945</td>
</tr>
</tbody>
</table>

FOREIGN PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Country</th>
<th>Date of Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>127,182</td>
<td>Switzerland</td>
<td>Aug. 16, 1928</td>
</tr>
</tbody>
</table>