

(No Model.)

2 Sheets—Sheet 1.

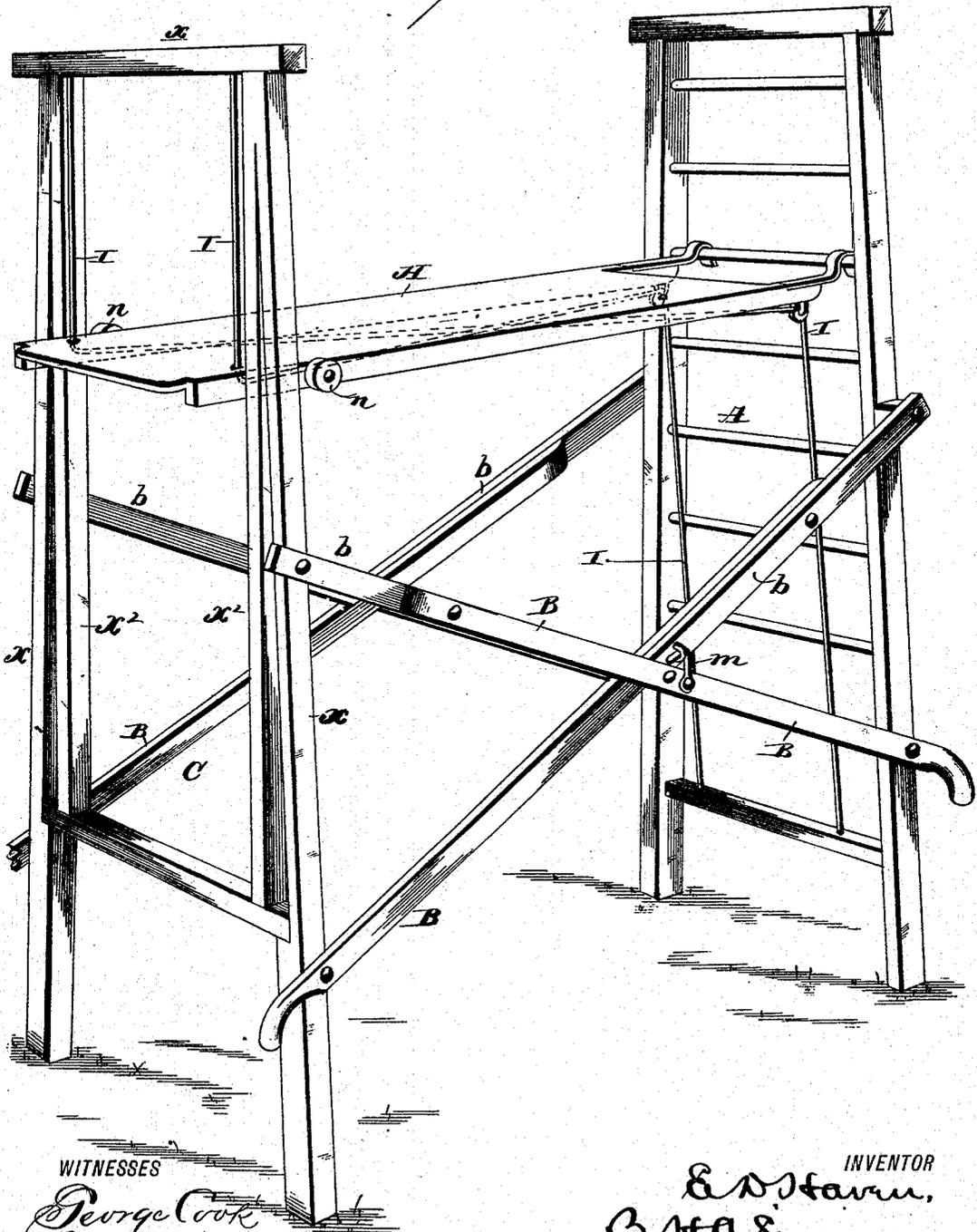
E. D. HAVEN.

COMBINED STEP LADDER AND HOIST.

No. 282,983.

Patented Aug. 14, 1883.

~~FIG. 1~~



WITNESSES

*George Cook*  
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INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

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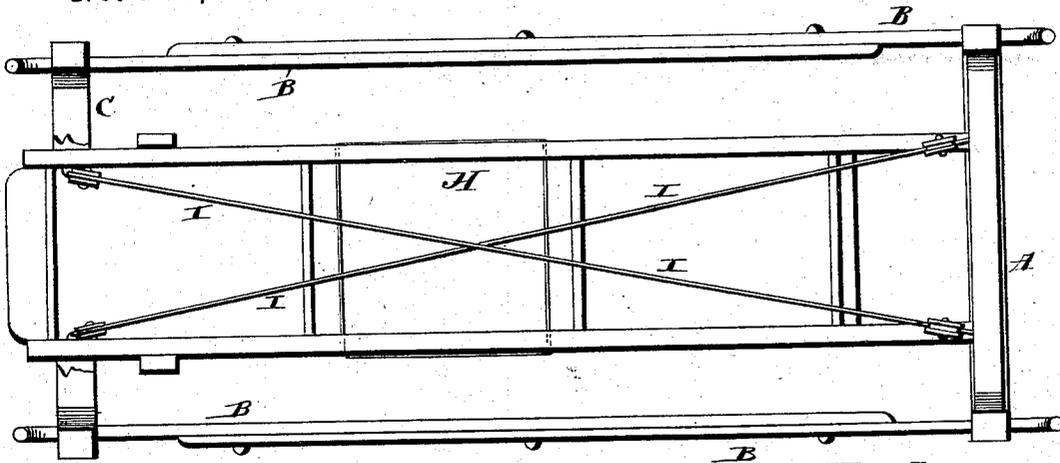


Fig. 2.

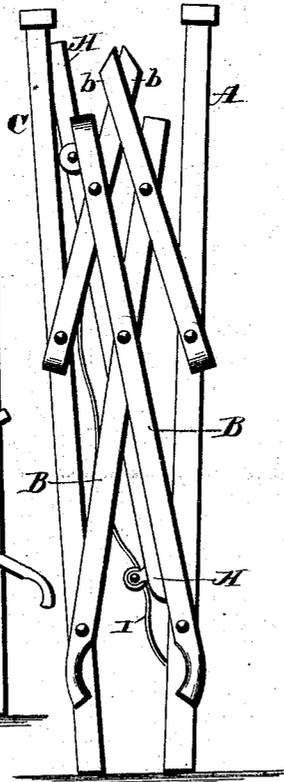


Fig. 3.

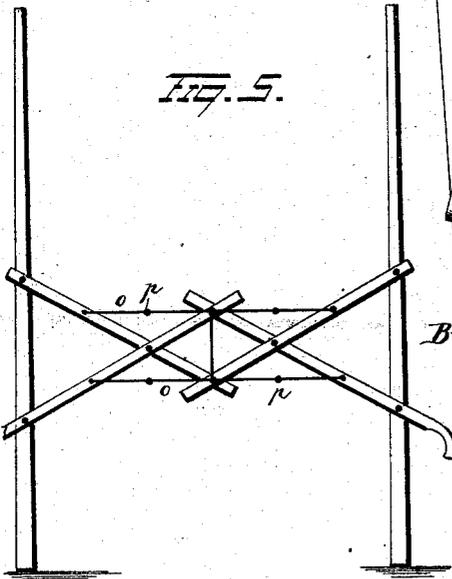


Fig. 5.

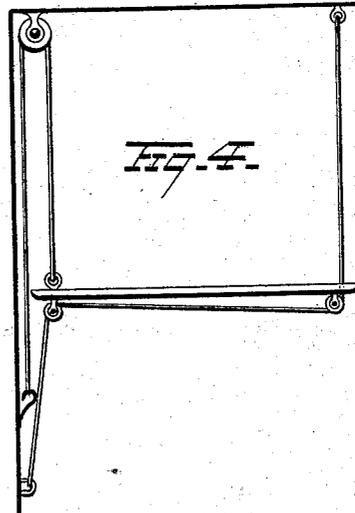


Fig. 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

EGBERT D. HAVEN, OF ALBANY, OREGON.

## COMBINED STEP-LADDER AND HOIST.

SPECIFICATION forming part of Letters Patent No. 282,983, dated August 14, 1883.

Application filed June 16, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, EGBERT D. HAVEN, of Albany, in the county of Linn and State of Oregon, have invented certain new and useful Improvements in Combined Step-Ladders and Hoists; 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.

My invention relates to an improvement in combined step-ladders and hoists, the object of the same being to provide a device of this character which shall combine simplicity and economy of construction with durability and efficiency in use; and with these objects in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improvement. Fig. 2 is a bottom plan view thereof. Fig. 3 is a view of my improvement in its closed adjustment. Figs. 4 and 5 are modifications.

A represents a ladder of ordinary construction, to which is secured by folding braces the frame C. This frame C is composed of the two standards, X, connected at the top by the cross-piece  $x'$  and near the bottom by the cross-piece  $x''$ . The standards X are preferably constructed as shown, with the braces  $x^2$  made integral with or secured to the standards X and fitting in the cross-piece  $x'$ . The folding braces connecting the said ladder A and frame C are composed of the arms B, which are pivotally secured near the lower ends of the ladder A and frame C, and pivotally secured to each other at point of crossing, the lower ends of said arms terminating in handles, by which the device may be easily moved from place to place. Near the upper ends of these arms B are pivoted the shorter arms,  $b$ , which are also pivotally secured to the ladder A and frame C. When the ladder is fully opened, the inner ends of these short arms,  $b$ , bear against the arms B, and may be retained in this position by means of the hook and eye  $m$ , or any other suitable means.

When it is desired to fold the device for shipment or storage, the lower ends of the lad-

der A and frame C are pushed toward each other, thus closing the arms  $b$ , the latter folding parallel with the former. By this arrangement it is evident that the device may be packed in a very small space, may be folded easily and quickly, and without detaching any of its parts.

To the upper portion of the frame C, and at points higher than it is desired to lift the platform H, are secured the ropes or equivalents I, which descend and pass around rollers or pulleys secured to the platform near the rear corners thereof. These ropes then cross each other, passing to the diagonally opposite corners of the platform, where they again pass around pulleys or rollers, and then descend and are secured to the lower part of the ladder A.

The platform H is cut away in front to allow a person to ascend the ladder on the inner side. The ends of this portion of the platform are hook-shaped, or provided with hooks adapted to fit the rounds of the ladder. On each side of this platform, and near the rear end thereof, is secured a roller,  $n$ , which bears against the brace  $x^2$ , and thus facilitates the raising and lowering of said platform.

When it is desired to ascend the ladder with a load—as, for instance, when used by a painter or plasterer to carry his material—the weight or load is placed on the platform, the same being lowered with the hooked ends placed over a round of the ladder, the person then ascending and carrying or raising with him the forward end of the platform. The raising of this end of the platform necessarily lengthens the ropes between the forward end of the platform and the lower part of the ladder, where the ropes are secured, and therefore shortens the ropes between the rear end of the platform and the upper part of the frame C, where the other ends of the ropes are fastened. It will now be readily seen that when the forward end of the platform is raised the rear end necessarily follows from the arrangement of the ropes, and therefore the platform always retains a horizontal position. After the person has ascended to the required height the hook ends of the platform are placed over the round of the ladder at that point, thus preventing the platform from descending, the crossing of the ropes at the same time pre-

venting it from tilting sidewise. After the platform is placed on the round of the ladder, a rigid horizontal platform is afforded for the person to stand and work on.

5 It will be seen that my improvement is adapted to answer many purposes, it being exceedingly useful to builders, and also adapted to be applied to hanging shelves, as shown in Fig. 4, where it is desirable to raise the shelves up out of the way when not in use. 10 It is also equally well adapted for use in stables and carriage-factories, where in the transfer of horses or carriages it is necessary to keep the carrying-platform in a horizontal position.

15 I would have it understood that I do not limit myself to the form of ladder shown and described, as the same may assume various different forms—as, for instance, the braces B may be placed a little higher on one side than 20 on the other to allow a person to pass beneath them to ascend the ladder from the inner side. Again, the braces may be supplied with an additional set of arms, as shown in Fig. 5, which are strengthened by the rods *o*, jointed 25 at *p*, in which case an extension-platform would be used; also, instead of raising and lowering the platform by hand, ropes and pulleys might be used in connection with a reel; and as the improvement may assume various forms, 30 according to the dictate of circumstances, I consider myself at liberty to make such changes and alterations as may be considered to fall within the spirit and scope of my invention.

35 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hoist or elevator, the combination, with the platform, of a suitable frame or support and ropes arranged as described, whereby the platform is raised, always retaining a 40 horizontal position, substantially as set forth.

2. The combination, with a ladder and a frame secured thereto, of a platform and ropes arranged as described, whereby the platform 45 is raised in a horizontal position, substantially as set forth.

3. The combination, with a ladder and a frame secured thereto, of a platform provided with rollers or pulleys, and ropes or their equivalents secured to the ladder and frame, adapted 50 to pass around said pulleys or rollers, and also adapted to hold the platform in a horizontal position when lifting-power is applied to its forward end, substantially as set forth.

4. The combination, with a ladder and a 55 frame secured thereto, of a platform the forward end of which is cut away, said platform being provided with rollers or pulleys near each corner, and ropes secured to the ladder and frame, and adapted to pass around the rollers or pulleys and hold the platform in a horizontal position when lifting-power is applied 60 to its forward end, substantially as set forth.

5. The combination, with a ladder and a frame secured thereto by folding braces, of a 65 platform the forward end of which is cut away, the ends thereof being hook-shaped, said platform being provided with rollers or pulleys, and ropes secured to the ladder and frame, and adapted to pass around said pulleys or rollers 70 and pass diagonally across the bottom of the platform, thereby causing the rear end, when the forward end is raised, to simultaneously rise with it, substantially as set forth.

6. The combination, with a ladder and a 75 frame secured thereto by folding braces, each of said braces consisting of two lower arms, the lower ends of the latter being pivotally secured to the frame and ladder, said arms being pivoted to each other where crossing, and 80 two upper arms also pivotally secured to the frame and ladder and to the lower arms, of a platform and means whereby the latter is raised, always retaining a horizontal position, 85 substantially as set forth.

7. The combination, with a ladder and a frame secured thereto by folding braces, of a platform, the forward end of which is cut away, as described, this end being hook-shaped and adapted to fit the rounds of the ladder, said 90 platform being provided with rollers adapted to bear against the said frame, and also with rollers near each corner thereof, and ropes, or their equivalents, secured at one end to the upper portion of the frame, and at the other 95 end to the lower part of the ladder, and passing around said pulleys or rollers, the ropes passing diagonally across the bottom of the platform, thereby causing the rear end of the platform to move simultaneously with the forward 100 end, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EGBERT DEWEY HAVEN.

Witnesses:

JAY W. BLAIN,

T. P. HACKLEMAN.