

(No Model.)

2 Sheets—Sheet 1.

H. BOWMAN.
ORCHARD LADDER.

No. 581,329.

Patented Apr. 27, 1897.

Fig. 1.

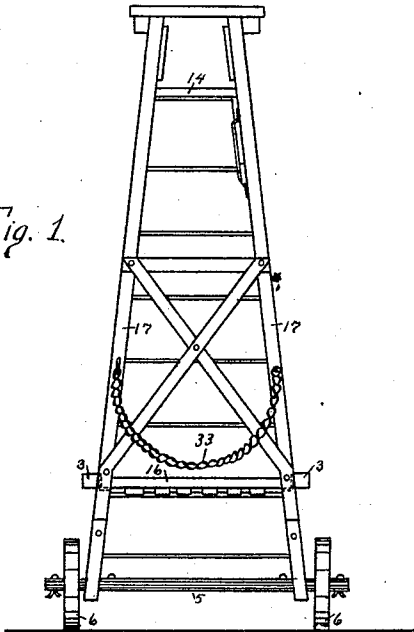


Fig. 2.

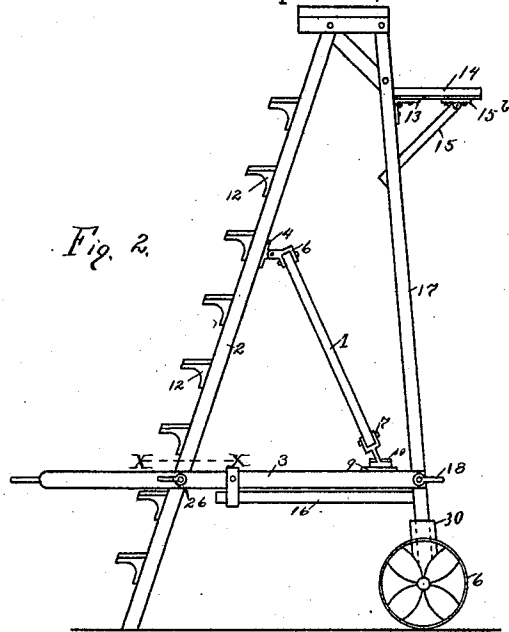


Fig. 6.

Fig. 7.

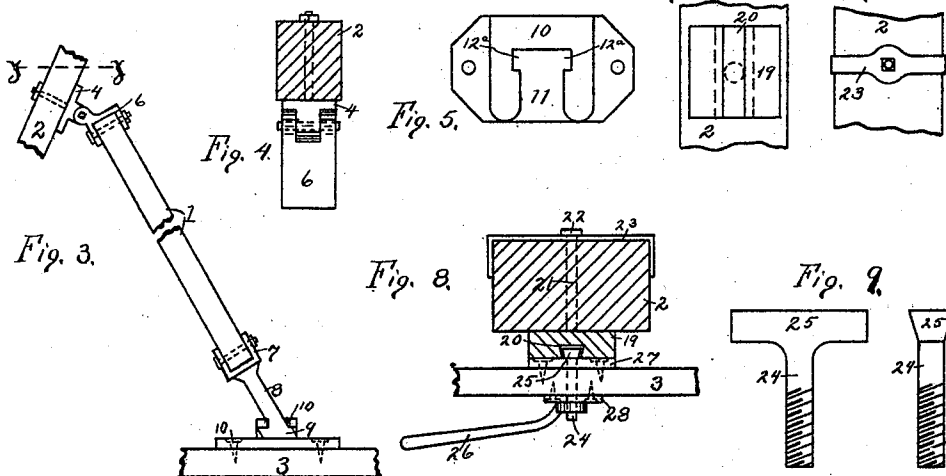


Fig. 10.

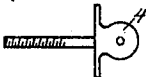


Fig. 11.

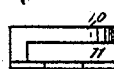
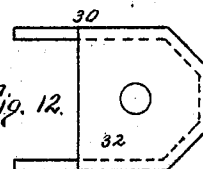


Fig. 12.



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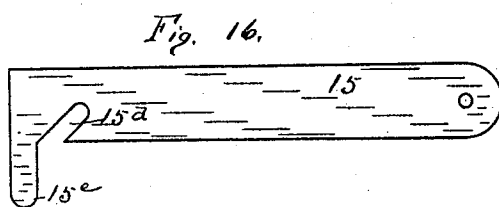
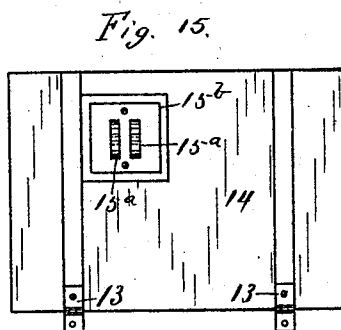
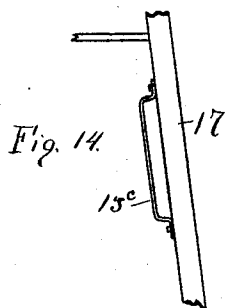
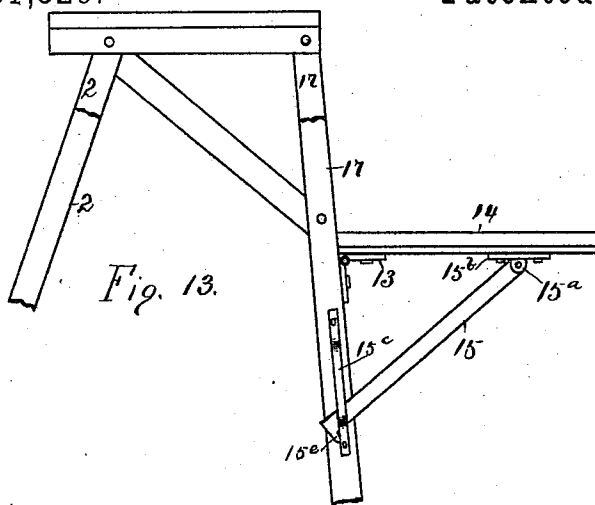
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2 Sheets—Sheet 2.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

HARVEY BOWMAN, OF FORGY, OHIO.

ORCHARD-LADDER.

SPECIFICATION forming part of Letters Patent No. 581,329, dated April 27, 1897.

Application filed August 27, 1896. Serial No. 604,059. (No model.)

To all whom it may concern:

Be it known that I, HARVEY BOWMAN, a citizen of the United States, residing at Forgy, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Orchard-Ladders; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in step-ladders especially designed for fruit-gathering or orchard use.

The invention is a further improvement of the ladder shown and described in my pending application for United States Letters Patent, filed July 13, 1896, Serial No. 598,914.

The object of the invention is to provide a step-ladder for fruit-growers that may be "knocked down" and set up without detaching screws, bolts, or other parts from the main part of the ladder.

In the accompanying drawings, Figures 1 and 2 designate, respectively, rear and side elevations of my improved orchard or step ladder. Fig. 3 is a detached enlarged side elevation of one of the side inclined braces. Parts are broken away to utilize space. Fig. 4 is an enlarged section on the line *yy* of Fig. 3. Fig. 5 is a top plan view of one of the socket-castings in which the lower end of one of the inclined braces is secured when the ladder is set up. Fig. 6 is an enlarged plan view of one of the clamp-plates to which the handles are secured. Fig. 7 is a similar view of one of the outer clamping plates. Fig. 8 is an enlarged sectional view on line *xx*, Fig. 2. Fig. 9 shows two views of one of the handle-clamping bolts. Fig. 10 is a detached view of one of the clamp-bolts attachable to the inclined posts of the ladder. Fig. 11 is a detached side view of the socket-plate shown in Fig. 5. Fig. 12 is a detached view of one of the bearing-plates attachable to the lower ends of the upright posts of the ladder. Fig. 13 is an enlarged view of the upper part of the ladder, the legs being broken away. Fig. 14 is a view of the inner side of one of the upright posts. Fig. 15 is a view of the lower

side of the upper shelf. Fig. 16 is a detached view of the supporting-bars for said shelf.

Several features of the ladder are practically the same as shown and described in my former application—for example, the shelf 16 and the manner of attaching it, the casters or wheels 6, axle 5, and the step-brackets 12. Therefore they will only be mentioned incidentally in describing the parts embodying the invention, which are as follows:

1 designates inclined braces that reach from the front posts 2 to the rear part of the handle-bars 3.

4 is a hinge-plate having an integral bolt that projects through the posts 2 and is made rigid to said posts by nuts 5. There is one of these plates secured to the inner side of each of said posts and their attachment is rigid and permanent.

6 designates a hinge-bracket rigidly and permanently bolted to the upper ends of the braces 1 and having a permanent pivotal connection with plates 4.

7 designates a similar bracket rigidly and permanently attached to the lower end of each of the braces 1 and having a shank or prolonged portion 8, which terminates in a flange 9 at the bottom, two sides of which are tapering, as shown in Fig. 3.

10 is a socket-plate, of which there is one attached to the upper side of each of the handles and each of which has a slot 11, into which the square end 9 may be slid sidewise and the shank 8 thereof locked in either of the slots 12^a. In making this connection between the inclined braces 1 and the handles 3 it is necessary to slightly spring said braces to bring the parts 9 into a position to enter the slots 11, and when said parts 9 are moved back into said slots until they come in line with the slots or notches 12^a they spring back again into their former position and become locked against any accidental displacement. The upper ends of the inclined braces are permanently hinged, and only their lower ends have to be detached from the handles in order to collapse or knock down the ladder. The handles are attached to the upright posts 17 of the ladder by bolts which are secured by wrench-nuts 18, and said handles 3 are frictionally secured to the posts 2 as follows:

19 designates a plate having a dovetail slot 20 and an integral bolt 21, that projects through an opening in the posts 2 and is secured by a nut 22, that fits against a plate 23, that lies against the inside of the posts 2.

24 is a bolt having an elongated head 25, conforming to the shape of the slot 20 and adapted to fit therein and be frictionally locked therein by means of a wrench-nut 26 to hold the handles rigidly against the posts 2. The said bolts penetrate openings in the handles and plates 27 and 28, that are attached to both sides of said handles, as shown in Fig. 8.

In order to detach the handles from the inclined posts and permit of their being carried up parallel with the upright posts 17 of the ladder, it is only necessary to release the elongated heads 25 from frictional contact with the plates 19 by turning wrench-nuts 26.

It will be noted that the parts which have to be disconnected for the purpose of folding the ladder or placing it in a knocked-down condition do not require the detaching of any of the bolts, screws, &c. Therefore there are no small parts to become lost or misplaced when the ladder is to be set up.

30 designates a casting or socket, of which there is one attached to the lower end of each of the upright posts 17, and in which the axle 5 is journaled. These boxes differ in construction from those shown in my pending application, hereinbefore referred to, by having their outer sides inclosed by a wall of metal 32, which serves to prevent the ends of the posts from working or shifting out of a proper position. The upper shelf 14 is permanently attached to the posts 17 by hinges 13, and may be swung down to a vertical position or supported in a horizontal position, as shown in Fig. 2, by a bar 15, which is pivoted between ears 15^a, projecting from a plate 15^b. The latter plate is attached to the lower side of the shelf, as shown in Fig. 15.

The lower end of the supporting-bar 15 is inclosed between a staple 15^c, secured to the inner side of one of the posts 17, and the said bar is adapted to engage with the lower horizontal part of the staple by means of a slot 15^d. The lower end of said bar 15 also has a projecting portion 15^e, that extends down on the inside of the staple and prevents said bar from becoming accidentally disconnected from the staple.

In Fig. 1, 33 designates a rope or chain one

end of which may be attached to one of the posts 17 and the other end provided with a snap or hook. When the ladder is folded or knocked down, this rope may be carried around it and secured by the snap to hold the ladder in its smallest compass.

Having fully described my invention, I claim—

1. In a portable orchard step-ladder, the combination with posts 2 and 17, and handle-bars 3, of inclined braces 1 having a hinge connection with the posts 2, the lower ends of said braces being adapted to slide in and out of a locking engagement with said handle-bars, a shelf 14 hinged to the posts 17, a notched bar pivoted to said shelf, and a staple 15^c secured to one of the posts 17 with which the notched end of said bar may engage to support the shelf in a horizontal position, as herein shown and described.

2. In a portable orchard step-ladder, the combination with the posts 2 and 17, and the handle-bars 3, of inclined braces 1 hinged to the posts 2, brackets 7 on the lower ends of said braces 1, said brackets terminating at their lower ends in flanges, and slotted plates 10 attached to the handle-bars with which the flanged ends of said brackets 7 may be slid in and out of a locking engagement, as herein shown and described.

3. In a portable orchard step-ladder, the combination with posts 2 and 17, and handle-bars 3, of inclined braces 1 having hinge-brackets 6 inclosing their upper ends, hinge-plates 4 attached to the inner sides of the posts 2 and to which said brackets 6 are connected, brackets 7 attached to the lower ends of said braces 1 and terminating at their lower ends in flanges, slotted plates attached to the handle-bars with which said flange ends are adapted to engage by moving the inclined braces laterally, a plate 19 having a dovetail slot 20 attached to posts 2, and a friction-bolt 24 attached to each of the handle-bars, having an elongated head adapted to dovetail in the slot 20, and means for releasing or increasing the friction between said elongated head, and the plate 19, as herein shown and described.

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

HARVEY BOWMAN.

Witnesses:

R. J. McCARTY,
L. L. ALLEN.