

May 4, 1948.

L. R. PEASE

2,440,831

STEPLADDER

Filed March 8, 1946

2 Sheets-Sheet 1

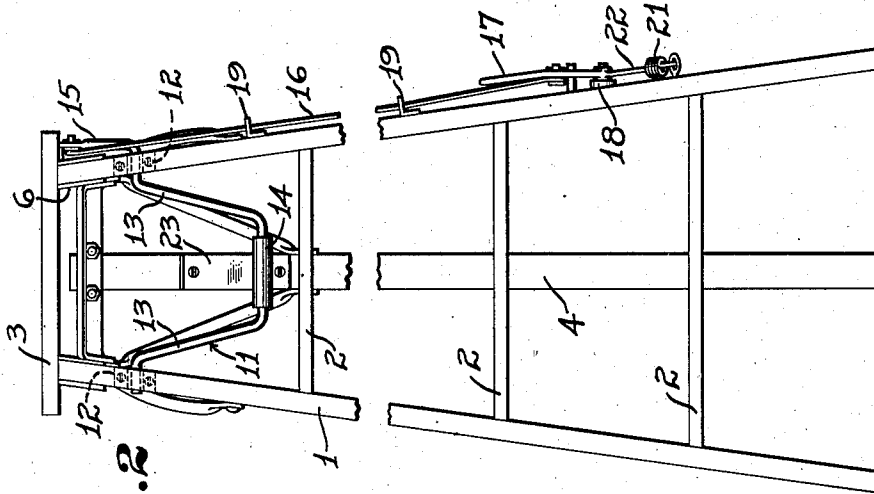


Fig. 2

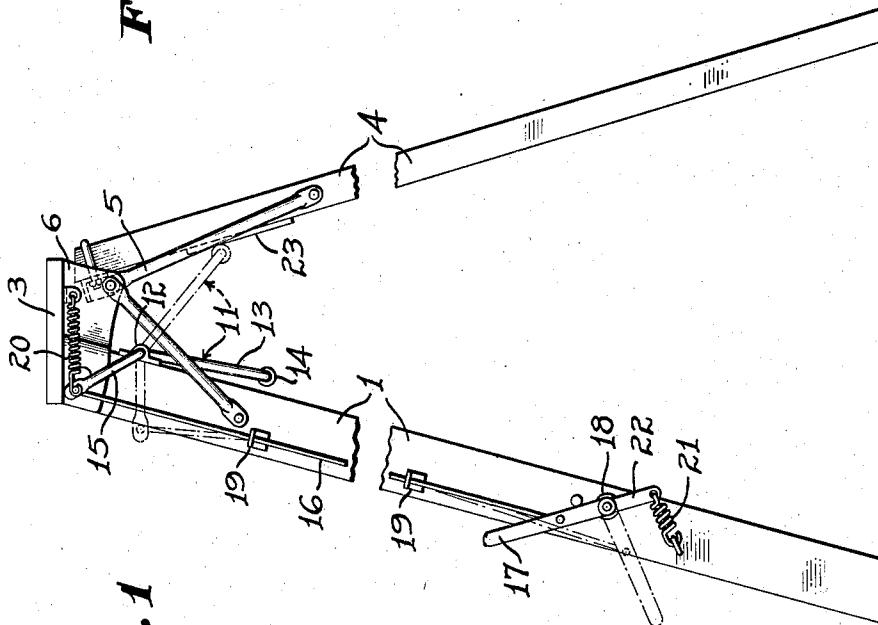


Fig. 1

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Fig. 3

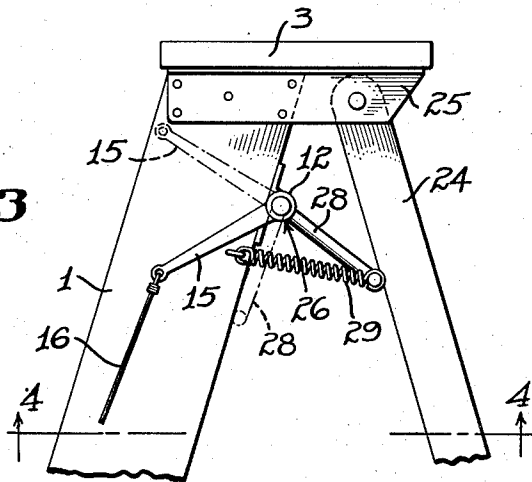
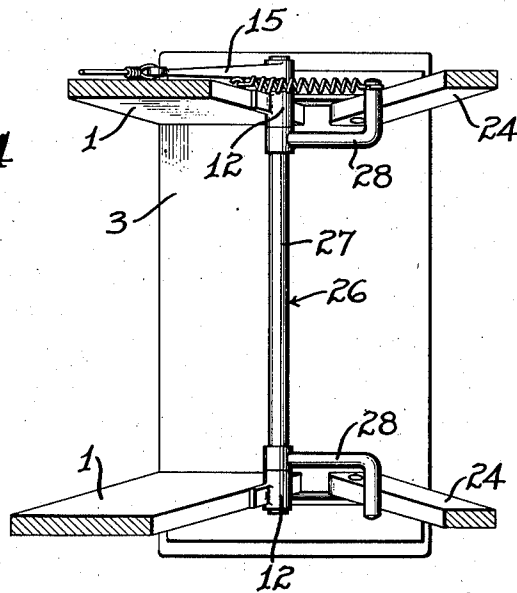


Fig. 4



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UNITED STATES PATENT OFFICE

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STEPLADDER

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6 Claims. (Cl. 228—27)

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My invention relates to stepladders, and among the objects of my invention are:

First: To provide an arrangement for stepladders of either the single or double brace leg type whereby a person standing in front of the ladder may, by operation of a lever located at one side of the ladder, cause a device to extend the tongue or brace leg or legs of the ladder into bracing position.

Second: To provide a stepladder which enables the user to extend the ladder tongue or brace leg or hold the brace leg extended while maneuvering the ladder into position, particularly when setting the ladder in and around trees and bushes.

Third: To provide a stepladder which greatly reduces the time and effort required to place the ladder in a secure position, at the same time increasing the amount of control over the movement of the ladder, so as to minimize the possibility of damage to trees or fruit.

Fourth: To provide a control means for the tongue or brace leg of a stepladder which may be installed on an otherwise conventional tripod stepladder or on a four-legged stepladder and which in no manner interferes with the ordinary use or handling thereof.

With the above and other objects in view, as may appear hereinafter, reference is made to the accompanying drawings in which:

Fig. 1 is a fragmentary side view of a tripod stepladder equipped with my control device;

Fig. 2 is a fragmentary front elevational view thereof;

Fig. 3 is a fragmentary side elevational view of my control device as adapted to a four-legged stepladder; and

Fig. 4 is a sectional view thereof through 4—4 of Fig. 3.

Reference is first directed to Figures 1 and 2 wherein a tripod type of stepladder incorporates my brace leg control device. The stepladder here shown comprises side rails 1 connected by suitable rungs or steps 2. The side rails preferably converge toward their upper ends and preferably support a platform 3. A tongue or brace leg 4 is connected by brace struts 5 to side brackets 6 secured to the upper ends of the rails 1 below the platform 3, so that the brace leg may be moved from a position substantially in the plane of the rails 1 to a diverging or bracing position. The structure so far described may be entirely conventional.

My invention is directed particularly to a means for conveniently moving the brace leg 4

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to its extended position and, if desired, hold the brace leg in such position. This is accomplished by an actuator 11 journaled in bearings 12 secured to the rear edges of the rails 1 near their upper extremities. The actuator includes a pair of converging arms 13 which are bent parallel to the axis of the bearings 12 at their adjacent portions and receive a roller 14. The actuator is adapted to pivot from a depending position, substantially flush with the rear edges of the rails, to an extended position so as to push outwardly on the brace leg 4 and move the brace leg to its extended position.

One extremity of the actuator 11 is provided with a lever arm 15 which is connected by a cable, wire or rod 16 to a hand lever 17 journaled on a pivot 18 secured to one of the rails 1. Suitable guides 19 are provided for the connecting rod 16.

A spring 20 is suitably located to return the actuator 11 to its retracted position shown by solid lines in Fig. 1. The spring 20 may be connected between the extremity of the lever arm 15 and an anchor provided under the platform 3 or otherwise placed so as to urge the actuator toward its normal or retracted position. An additional spring 21 anchored to the side rail 1 may be connected to an arm 22 extending from the hand lever 17 to insure return movement of the hand lever to its retracted position, particularly if cable is employed as the linking means 16.

In order to minimize wear and provide more efficient operation of the actuator, a striker plate 23 is mounted on the brace leg in the region thereof engaged by the roller 14.

Reference is now directed to Figures 3 and 4. The stepladder here shown has two, in place of one, brace legs 24 hinged to suitable brackets 25 under the platform 3. An actuator 26 is substituted for the actuator 11, in this case the actuator including a connecting shaft 27 extending between the bearings 12. At one end is provided the lever 15. Also secured to the shaft 27 are lever arms 28 which engage corresponding legs 24 as lever 15 is pulled downward. If desired, striker plates and rollers similar to the striker plate 23 and roller 14 may be employed.

A spring 29 is connected between one of the lever arms associated with the shaft 27; for example, one of the arms 28. The lever 15 is actuated in the same manner as the first structure; namely, by means of cable 16 and hand lever 17.

My ladder is employed as follows:

When setting up the ladder, one stands in front of the ladder, tilts it toward him, steadying

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the ladder with one hand and at the same time operating the hand lever 17 to swing the brace leg 4 or brace legs 24 outwardly. While so held, the ladder may be tilted to guide the lower end of the brace leg or legs in and around branches until it is resting on the ground in proper relation to the ladder rails. The hand lever may then be released, and the actuator 11 or 26, as the case may be, returns to its retracted position. By this means the necessity of standing between the ladder and the brace leg or legs is obviated. This is highly desirable inasmuch as the region between the ladder and the brace leg or legs is often occupied by the branches of the tree, adjacent to which it is necessary to place the ladder in order to pick fruit.

Many other embodiments of the invention may be resorted to without departing from the spirit of the invention.

I claim:

1. The combination, with a stepladder having rails, step rungs, a platform at the upper end of the rails and at least one brace leg pivotally connected therewith about an axis adjacent to said platform, of means for operating said brace leg comprising: a crank arm journaled on said rails under said platform and movable into engagement with said brace leg to urge the leg rearwardly; a lever arm connected with said crank arm; a hand lever pivotally mounted on one of said rails for access from the front side of the ladder; and means operatively connecting said lever arm and said hand lever.

2. The combination, with a stepladder having rails, step rungs, a platform at the upper end of the rails and at least one brace leg pivotally connected therewith about an axis adjacent to said platform, of: a crank arm in the form of an open loop; bearing means on said rails journaling the extremities of the crank arm whereby the mid-portion thereof may be swung to and from the brace leg; a hand lever located on one of said rails accessible from the front side of the ladder; and means operatively connecting said hand lever with said crank arm for urging the mid-portion thereof into engagement with said brace leg to swing the brace leg into bracing position.

3. A stepladder comprising: rails, rungs connecting the rails and at least one brace leg piv-

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otally connected to the upper extremities of said rails; means journaled on said rails at their upper ends and movable into engagement with said brace leg to urge said brace leg into a bracing position; a hand lever accessible from the front of the ladder; and a connecting device operatively joining said means and said lever.

4. A stepladder comprising: rails, rungs connecting the rails and at least one brace leg pivotally connected to the upper extremities of said rails; means journaled on said rails at their upper ends and movable into engagement with said brace leg to urge said brace leg into a bracing position; a hand lever accessible from the front of the ladder; a connecting device operatively joining said means and said lever; and a spring normally holding said means retracted from said brace leg.

5. A stepladder comprising: rails, rungs connecting the rails and at least one brace leg pivotally connected to the upper extremities of said rails; an upper lever journaled on at least one of said rails for engagement with said brace leg to move said brace leg to an extended position; a lower lever mounted on one of said rails and accessible from the front side of said ladder; and means operatively connecting said levers.

6. A stepladder comprising: rails, rungs connecting the rails and at least one brace leg pivotally connected to the upper extremities of said rails; an upper lever journaled on at least one of said rails for engagement with said brace leg to move said brace leg to an extended position; a lower lever mounted on one of said rails and accessible from the front side of said ladder; means operatively connecting said levers; and yieldable means tending to hold the upper lever retracted and clear of said brace leg.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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