

A. A. SHEETZ.
ADJUSTABLE LADDER.
APPLICATION FILED JULY 13, 1910.

983,172.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

FIG. 1

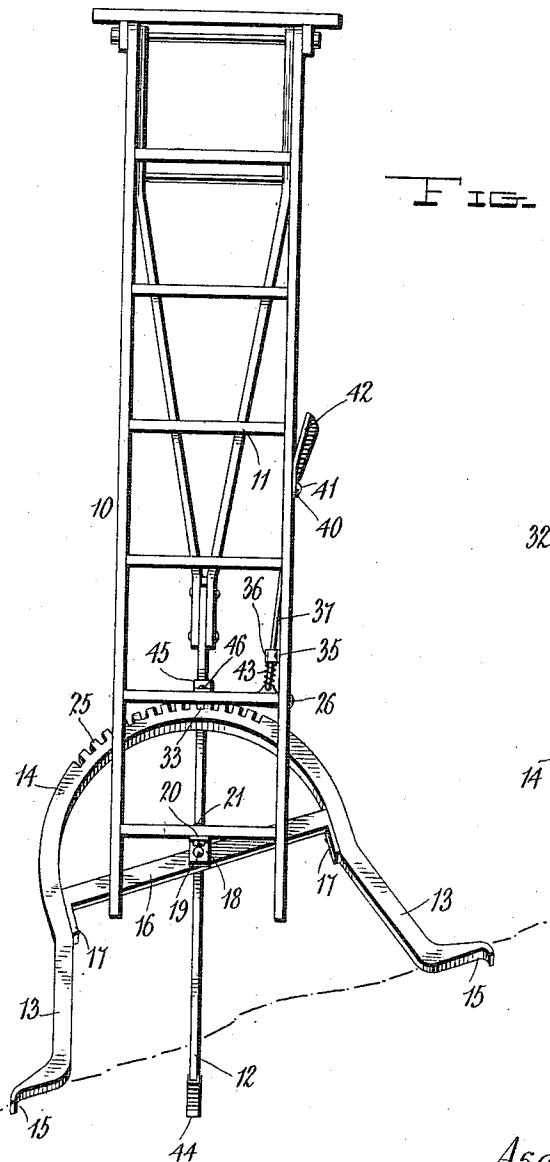
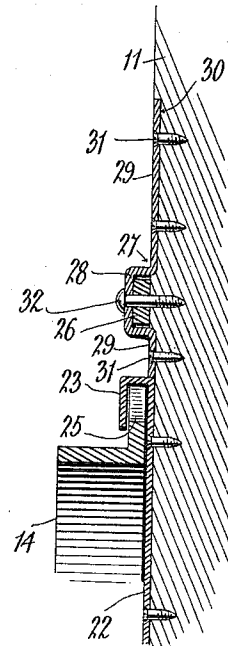


FIG. 4



Witnesses

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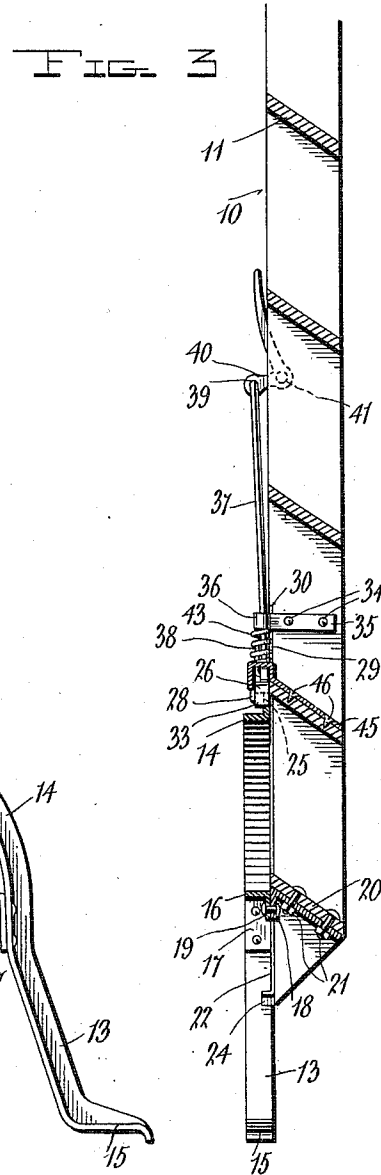
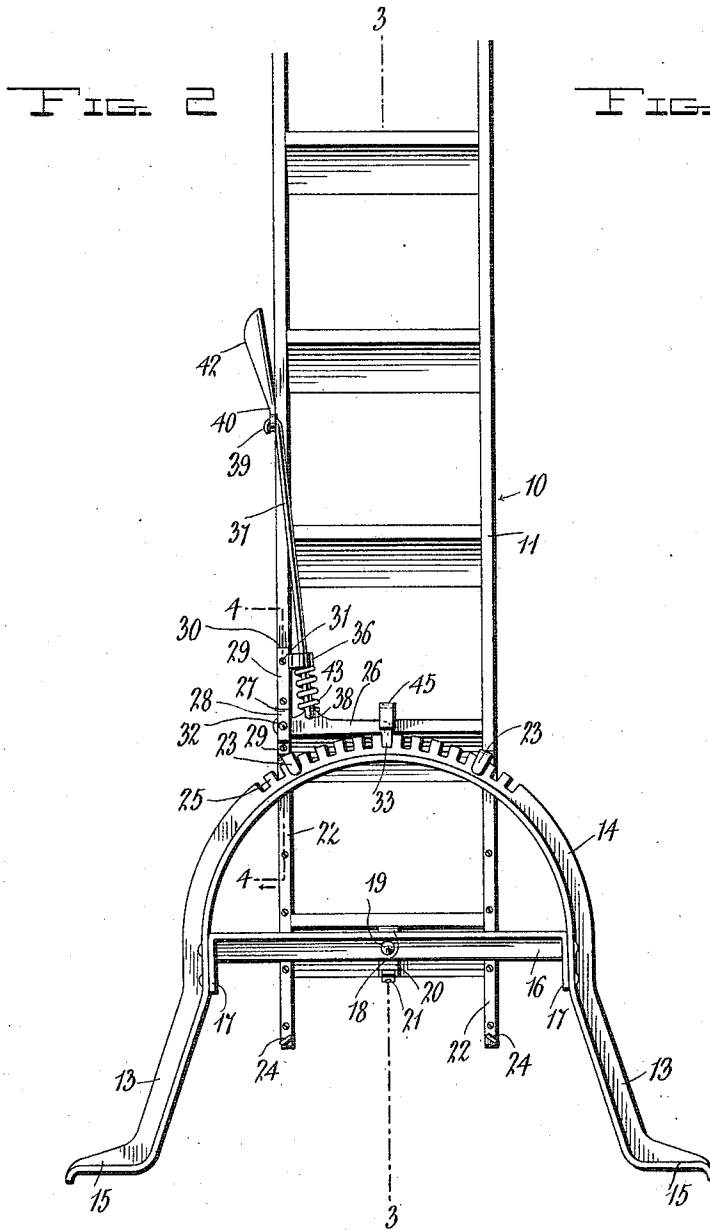
Attorneys

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE LADDER.

983,172.

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To all whom it may concern:

Be it known that I, ASA A. SHEETZ, a citizen of the United States, residing at Woodstock, in the county of Shenandoah, State of Virginia, have invented certain new and useful Improvements in Adjustable Ladders; 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.

This invention relates to ladders, more particularly to means for so supporting ladders upon hillsides in picking fruit that the rounds will be in horizontal position.

The object of the present invention is to provide a device of this character that may be readily secured to most of the ordinary ladders and will permit of the ladder being readily adjusted to the desired position before the user has mounted thereon.

A further object is to provide a supplemental pair of legs upon which an ordinary ladder may be pivotally supported, novel means being provided for simultaneously guiding the ladder in its pivotal movement and relieving the pivot of a portion of the weight of the ladder.

In the accompanying drawings forming part of this specification:—Figure 1 is a front elevation of a step ladder equipped with my improved device. Fig. 2 is an enlarged fragmentary rear elevation of the ladder equipped with the device. Fig. 3 is a longitudinal sectional view taken on the line 3—3, Fig. 2. Fig. 4 is a fragmentary sectional view taken on the line 4—4, Fig. 2.

Referring now to the drawing, the invention is shown applied to an ordinary step-ladder 10, although a ladder of any preferred construction may be employed. The step-ladder is of the usual kind, comprising a ladder proper, 11, and a pivoted prop 12.

The device comprising the subject matter of this invention comprises a pair of outwardly inclined legs 13 connected at their upper ends by an arch 14, and having their lower ends turned outwardly to form feet 15, the outer ends of which are abruptly bent downwardly so as to penetrate the ground and anchor the legs in position. These legs are formed preferably from a single length of angle-iron material and are braced against collapsing by a transverse angle-iron brace 16; the terminals of which are abruptly bent downwardly and riveted

or otherwise secured to the inner face of the arch as shown at 17. This brace forms means for pivotally securing the legs of the ladder and for this purpose an angular strap 18 is provided, this strap having legs of unequal length, the short leg being bolted to the outer face of one leg of the brace 16 as shown at 19, and the long leg 20 being bolted or otherwise secured to the bottom face of the lowermost step of the step-ladder as shown at 21, the bolt 19 which connects the shorter leg to the transverse brace, it will be observed, serving as a pivot upon which the step-ladder may rock.

For guiding the step-ladder in its pivotal movement upon the legs, a pair of wear plates 22 are fixed to the rear edges of the step-ladder sides, these wear plates having their uppermost end bent back upon themselves to form hooks 23 which bear upon the top edge and engage in the elbow of the arch, thus preventing the arch from accidental disengagement from the step-ladder, and at the same time bearing sufficiently upon the top edge of the arch to relieve the pivot of a portion of the weight of the step-ladder. It will be observed that these wear plates contact the arch and transverse brace during the entire pivotal movement of the legs so that the ladder is not mutilated during such movement. It will here be stated that the lower ends of the wear plates are bent outwardly from the main body of the plates and constitute stops 24 which by their engagement with the transverse brace limit the pivotal movement of the ladder upon the legs in both directions.

The means for locking the ladder in any particular position will now be described. The top edge of the arch is mutilated to form a series of approximately rectangular teeth 25. A dog 26 is pivoted at one end upon the rear edge of one of the step-ladder sides, this dog being preferably rectangular in cross section and having its pivotal end working in a keeper 27, this keeper comprising a U shaped body 28 which straddles the pivoted end of the keeper, the terminals of this body being bent outwardly in opposite directions, and forming legs 29 which are embedded in rabbets 30 formed in the rear edge of said side and are secured in position by screws or similar connectors 31. A pivot bolt 32 is passed through the body portion of the keeper and end of the dog and into the edge of the step-ladder to pivotally

mount the dog. The free end of the dog is provided with a down-turned lip 33 which is preferably formed rectangular in contour and is sufficient in size to fill the valleys between adjacent teeth in the arch. The down-turned lip engages the rack approximately midway between the hooked extremities of the wear plates so that wobbling of the ladder will be prevented. The toothed edge of the arch will be hereinafter referred to as a rack.

Bolted or otherwise secured as shown at 34 to the inner face of one of the ladder sides is a strap 35, which is equipped at its outer end with an eye 36, this eye forming a guide for a pull rod 37, the lower end of which is provided with a hook 38 which is engaged through a suitable opening formed in the dog. The upper end of the pull rod is provided with a hooked extremity 39, which engages one leg of a bell crank lever 40, this bell crank lever being pivoted at its elbow upon the outer face of the side as shown at 41 and having the edge of its remaining leg bent longitudinally upon itself to form an outstanding lip 42, against which the operator's hand may be placed in applying pressure to the bell crank lever so as to release the dog from the rack.

A helical spring 43 is seated upon the pull rod and bears with its terminal convolutions against the dog and guide eye, this spring operating to normally hold the dog in engagement with the rack and to store up energy as the dog is manually disengaged so as to return the dog to its operative position upon its release.

Fixed to the free end of the prop is a penetrating point 44, comprising a channel bar adapted to snugly fit the inner edge and sides of the prop end, the legs of the channel bar being riveted or otherwise secured to the prop end and the channel bar further having its sides cut away to form a sharp pointed extremity which is adapted to penetrate the ground and prevent collapsing of the prop.

It will be noted that the latch manipulating lever is so positioned that it may be readily operated when the ladder is grasped to place it upon the ground. After the supporting legs have been disposed upon the ground, the lever is operated to disengage the latch from the rack and the ladder is swung into vertical position, after which the lever is released when the latch reengages the rack and holds the ladder and its feet in fixed relation.

For guiding the dog in its movement, a strap 45 is bolted or otherwise connected as shown at 46 to the top face of one of the ladder steps and is provided with a hooked

extremity which overlies the rack and forms a guide that straddles the dog and directs the latter in its movement.

What is claimed is:—

1. The combination with a ladder of supplemental legs, having their upper ends connected by an arch, means for pivotally securing a ladder to said legs, means carried by the ladder and engaging said arch and operating to simultaneously guide the ladder in its pivotal movement and relieve said pivotal means of a portion of the ladder's weight, and means for locking the ladder against movement.

2. The combination with a ladder of supplemental legs connected at their upper ends by an arch, a transverse brace element connecting the legs below said arch, a pivotal connection between said ladder and transverse brace element, guide elements carried by the ladder and having hooked extremities engaging said arch and operating to relieve said pivotal connection of a portion of the ladder's weight, and means for locking the ladder against pivotal movement.

3. The combination with a ladder of supplemental legs, connected at their upper ends by an arch, said arch having a serrated face forming a rack, a pivotal connection between said legs and said ladder, spaced guide elements arranged upon said ladder and having hooked extremities engaged over said rack and operating to simultaneously guide the ladder in its pivotal movement and relieve said pivotal connection of a portion of the ladder's weight, and a manually operable dog mounted upon the ladder and normally engaging said rack intermediate said guides.

4. The combination with a ladder of supplemental outwardly inclined legs, having terminal anchoring extremities at their lower ends and having their upper ends connected by an arch, a transverse brace bridging said arch, a pivotal connection between said ladder and said transverse brace, said arch having a toothed edge forming a rack, guide elements fixed to the edges of the ladder side and having hooked extremities engaging said rack and simultaneously guiding the ladder in its pivotal movement and relieving said pivotal connection of a portion of the ladder's weight, and a spring controlled dog normally engaging said rack and locking the ladder against pivotal movement.

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

ASA A. SHEETZ.

Witnesses:

GEO. H. CHANDLEE,
JOS. H. BLACKWOOD.