

March 19, 1946.

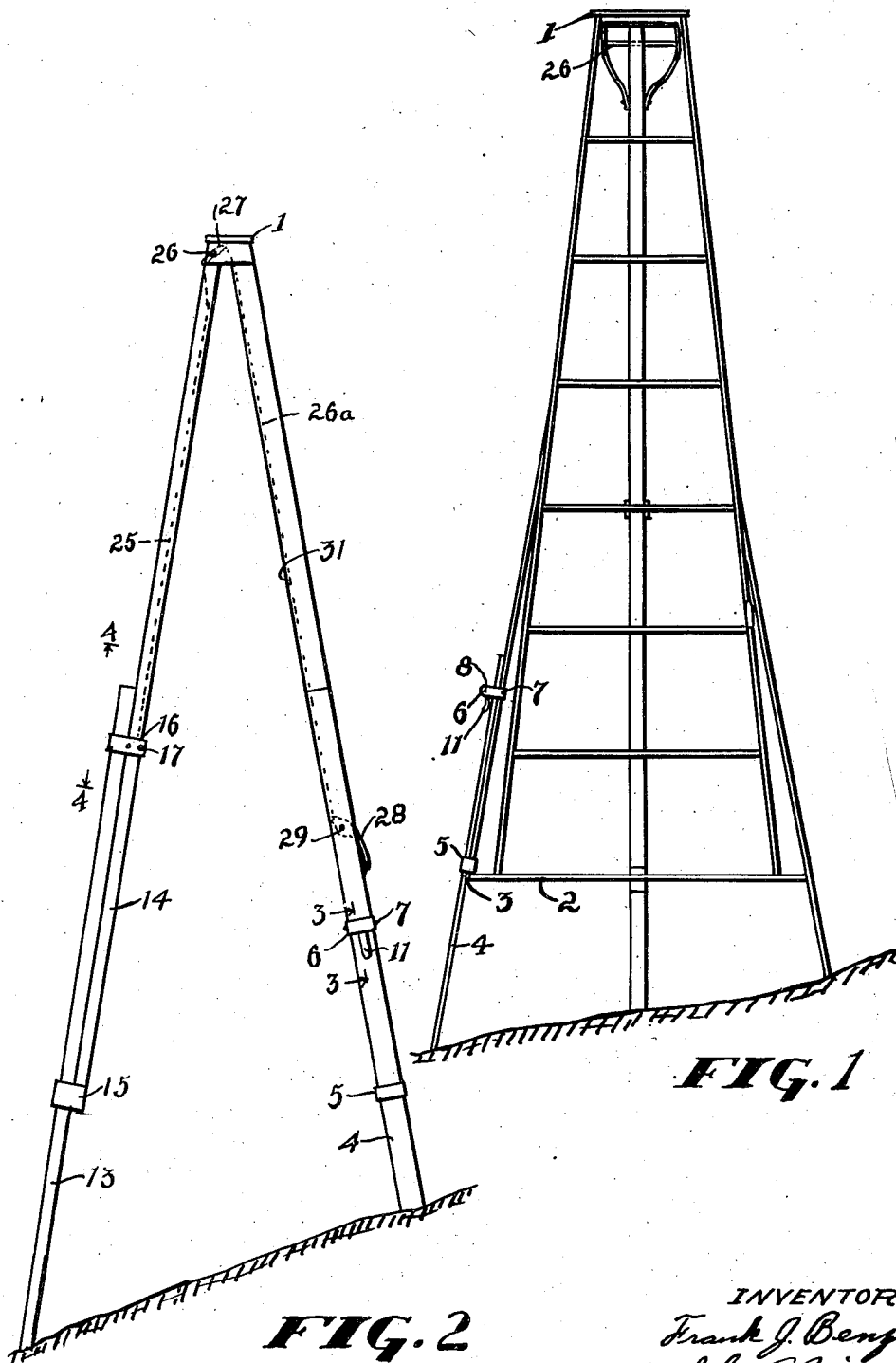
F. J. BENZ

2,396,813

LADDER

Filed June 12, 1944

2 Sheets-Sheet 1



INVENTOR
Frank J. Benz
By John A. Baismith
ATTY

March 19, 1946.

F. J. BENZ

2,396,813

LADDER

Filed June 12, 1944

2 Sheets-Sheet 2

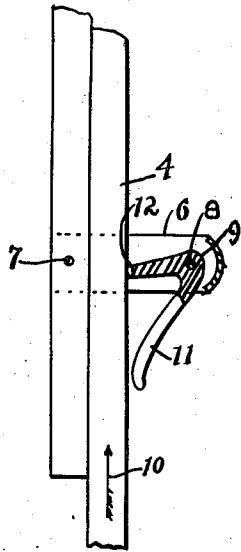


FIG. 3

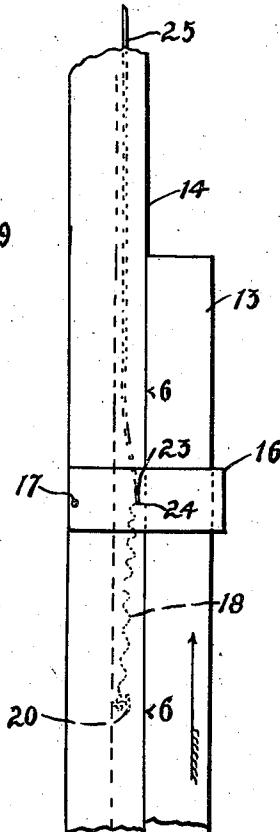


FIG. 4

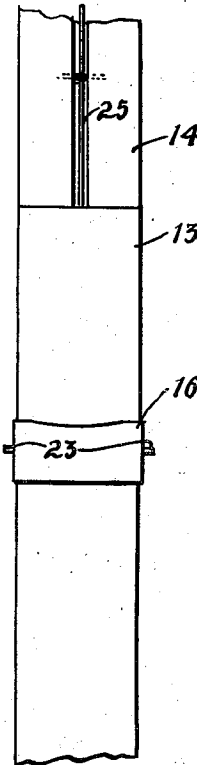


FIG. 5

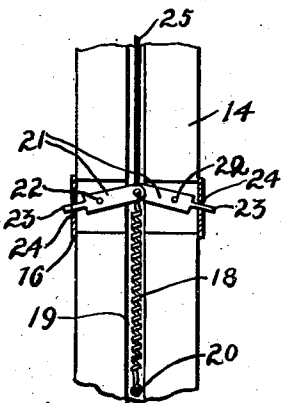


FIG. 6

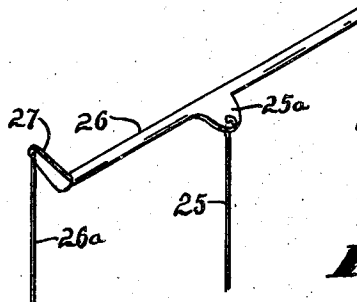


FIG. 7

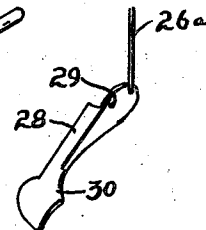


FIG. 8

INVENTOR
Frank J. Benz
BY John A. O'Connell
ATTY

UNITED STATES PATENT OFFICE

2,396,813

LADDER

Frank J. Benz, Morgan Hill, Calif.

Application June 12, 1944, Serial No. 539,894

1 Claim. (Cl. 228—63)

The present invention relates to ladders and more particularly to that form of ladder having a supporting leg and used for the picking of fruit in an orchard.

The stiles and leg of the ladder have heretofore been of fixed length, and consequently it has been difficult if not impossible to properly place the ladder in position for picking where the trees are growing on a side hill, or where the land is otherwise than level.

It is, therefore, the object of my invention to provide a ladder wherein a stile or leg, if the ladder has a supporting leg, may be adjusted as to length to accommodate it to any inequality in the surface of the land on which it is to be placed, and to provide an adjustment means that may readily be applied to an existing ladder and that will be simple in form and construction, economical to manufacture, quickly and easily operated by the party handling the ladder, strong, durable, and highly efficient in its practical application.

In the drawings:

Figure 1 is a front elevational view of a ladder embodying my invention in one stile.

Figure 2 is a side elevational view of a ladder embodying my invention in its supporting leg.

Figure 3 is an enlarged detail sectional view on line 3—3 of Figure 2.

Figure 4 is an enlarged elevational view of a portion of the side of the ladder leg as indicated at 4—4 of Figure 2.

Figure 5 is an inside elevational view of the same.

Figure 6 is a sectional view on line 6—6 of Figure 4.

Figure 7 is a perspective illustration of a portion of the leg controlling mechanism.

Figure 8 is a perspective view of the lever for operating the leg controlling mechanism.

In the particular embodiment of the invention herein disclosed, I show at 1 a ladder having the bottom end of one stile removed up to the bottom of the first step 2 as indicated at 3 and replaced with an adjustable stile portion 4 slidably mounted on the side of the ladder as shown in guide 5 and guide 6. Guide 5 is fixedly mounted on the ladder, but guide 6 is pivotally mounted thereon as at 7. The guide 6 has a pin 8 passing therethrough in parallel relation to the pivot pin 7, and a dog 9 is pivotally mounted thereon as shown. The dog 9 is in the form of a bell crank, one end extending downwardly over the ladder stile where it may be easily engaged by a finger of the operator and the other end being slightly longer than the distance between the pin 8 and the facing

surface of the stile so that any force urging the stile portion 4 to move in the direction of the arrow 10 relative to the ladder 1 will force the dog to more tightly bite into the part 4 and immovably bind it to the ladder 1. By relieving the pressure and lifting up on the downwardly extending portion 11 of the dog 9 the stile engaging end 12 may be disengaged and the stile portion 4 moved to any desired position relative to the ladder where it may be locked securely by the means described.

By equipping the two side stiles of a ladder as described it may be readily adjusted to maintain a vertical position insofar as lateral tipping is concerned regardless of the contour of the land.

Certain other conditions, such as that shown in Figure 2, are met by slidably mounting an extension leg 13 on the ladder leg 14, and controlling its adjustment in the following manner.

On the lower end of the ladder leg 14 is mounted a fixed guide member 15, and spaced upwardly from the member 15 is a guide 16 pivotally mounted on leg 14 as at 17. When the member 16 is in contact with the extension 13 any force tending to urge the extension upwardly as indicated by the arrow in Fig. 4 also tends to swing the member 16 further about its pivotal point 17 and causes it to more tightly grip the extension 13 and prevent its movement. The member 16 is normally held in contact with the extension leg 13 by a spring 18 in groove 19 connected at one end to a pin 20 and at the other end to a pair of levers 21 pivoted at 22 and having outer ends 23 engaging slots as 24 in member 16, and operating to force the upper edge of member 16 upwardly into contact with extension leg 13.

In order to move the extension 13 relative to the leg 14 it is necessary to swing the member 16 backwardly on its pivot 17, and this is accomplished in the following manner.

A wire 25 is attached at one end to the levers 21 and at the other end to a lug 25a projecting outwardly from the central part of rod 26 at the top of the ladder and forming a part of its normal construction. By turning the rod in a clockwise direction the pull of spring 18 is counteracted and the member 16 is swung away from contact with extension 13 permitting said extension to slide in either direction on leg 14.

The rod 26 is turned by the operator of the ladder through the medium of a wire 26a having one end attached to an arm 27 on the end of rod 26 and having its other end attached to a lever 28 pivotally mounted on the ladder at 29. By raising the longer arm of the lever at 30 it is

caused to place the wire 26a under tension and turn rod 25 with the result described. When the extension 13 is free to slide it may be allowed to slide down by gravity to some such position as shown in Figure 2, or the weight of the ladder may be allowed to force the extension 13 upwardly to some desired point. This adjustment may be effected by the user of the ladder since he may operate the lever 30 when he desires to alter the length of the leg 14.

While the wire 25 operates in a groove 19, the wire 26a operates in a groove 31 in the inner side of the stile on which the lever 28 is mounted. These grooves are provided for the wires so that they will not become entangled in the branches of the tree in which the ladder may be placed.

In the following claim the word "leg" is intended to mean either stile or the supporting member pivoted to the top of the ladder at 32.

Having thus described my invention, what I

claim as new and desire to secure by Letters Patent, is:

5 A ladder wherein a rotatable rod is mounted transversely thereof adjacent its upper end, and a supporting leg is associated therewith, the leg having an extension member longitudinally slid-
10 able thereon and clamping means for clamping the extension member against movement relative to the leg, spring means connecting the clamping means and leg to urge the clamping means into
15 engagement with the extension member, means connecting the clamping means and rotatable rod operative to move the clamping means out of engagement with the extension member when the rod is rotated, and manually operated means for
rotating said rod connected to said rod at one end and having its other end terminating at a point on the ladder adjacent its lower end.

FRANK J. BENZ.