Sept. 24, 1929. J. F. CZISCHKE 1,729,033

LADDER

Filed Sept. 19, 1927

Fig. 1

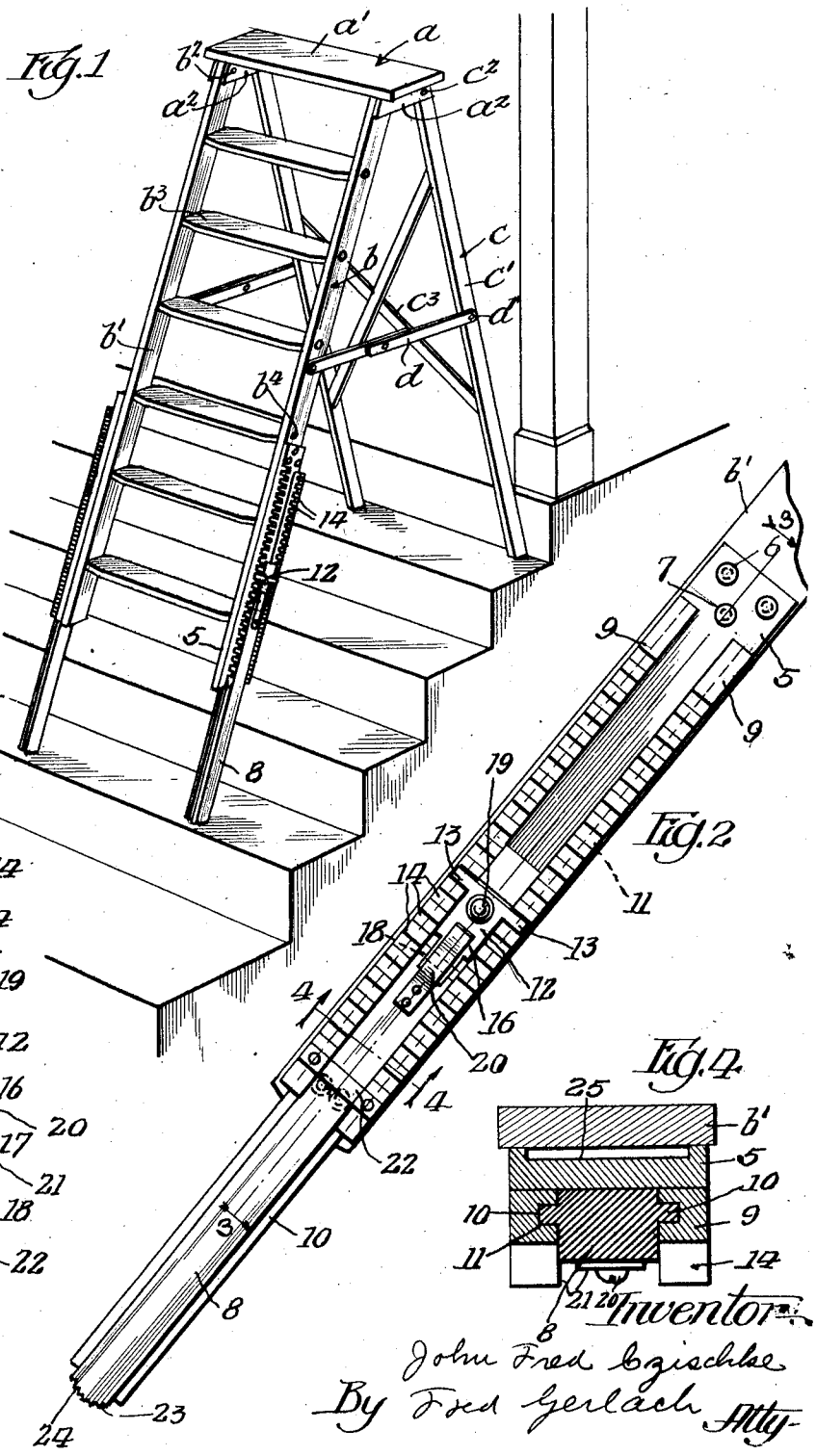

Fig. 3

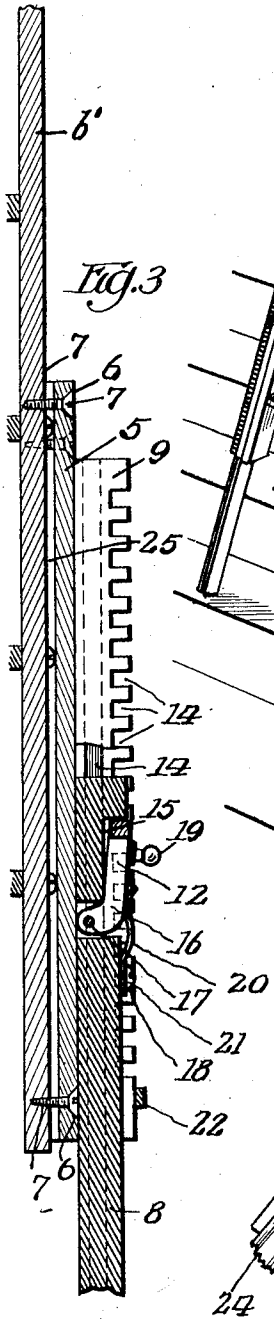

Fig. 2

Fig. 4

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UNITED STATES PATENT OFFICE

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LADDER

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The invention relates to ladders and more particularly to extension devices for use in connection with the legs of the ladder-frame of a stepladder.

Stepladders are often employed for painting, window-washing and other such operations. When the object sought to be reached by means of the ladder is disposed above a stairway or step, the ladder is generally useless because the legs of the back-frame are supported at a higher elevation than the legs of the ladder-frame and consequently the ladder is inclined at an angle with respect to its normal or operative position. In practice, boxes are sometimes used for supporting the legs of the ladder-frame so as to meet or overcome this situation. However, such an arrangement is not practical, because the box upon which the ladder is supported often is not of the proper dimensions or is displaced from under the ladder with dire consequences.

One object of the present invention is to provide a pair of devices which are adapted to be readily secured to the legs of the ladder-frame of a stepladder and are operable as extensions to support the ladder-frame at different elevations. With these devices, it is possible to adapt the stepladder for use upon a stairway or step and by adjusting one of the devices relatively to the other, it is possible to use the ladder upon uneven ground.

Another object of the invention is to provide a pair of devices of this character which are novel in construction and embody a comparatively few number of parts so that they may be manufactured at a low cost.

Other and incidental objects will appear hereafter from the detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by the claims at the conclusion hereof.

In the drawing which forms a part of this disclosure: Fig. 1 is a perspective view of a stepladder equipped with a pair of devices embodying the invention. Fig. 2 is a plan view of one of the devices. Fig. 3 is a longitudinal sectional view taken on line 3—3 of Fig. 2. Fig. 4 is an enlarged transverse sectional view taken on line 4—4 of Fig. 2.

The invention is exemplified in connection with a stepladder which may be of any suitable or well-known construction. The ladder illustrated in the drawing comprises a top or connecting member a, a ladder-frame b, and a back-frame c. The top member consists of a rectangular board a' having attached to the under face thereof a pair of pivot brackets a^2. The ladder-frame consists of a pair of side bars b', the upper ends of which are rigidly secured to the board a' and brackets a^2 by bolts b^2, and steps b^3 which extend between the side bars and are secured in place by screws b^4 which extend through said side-bars. The back-frame c consists of a pair of side bars c', the upper ends of which are pivotally connected to the brackets a^2 by means of bolts or studs c^2, and a pair of crossed braces c^3 which connect the side-bars together for conjoint movement. A pair of link-connections d are pivotally connected to the side-bars of the frames by studs d' and serve to prevent outward movement of the back-frame relatively to the ladder-frame beyond a certain predetermined distance.

The devices which form the subject matter of the present invention are adapted to be connected to the lower ends of the side-bars b' and are operable as hereinbefore stated to support the ladder-frame at different elevations. Each device comprises an elongated base-member 5 which is provided at its ends with countersunk holes 6 for wood screws 7 whereby the member may be fixedly secured in a longitudinal position to the lower end of one of the side-bars b'. Each device also comprises an extension-member 8 which is substantially equal in length to the base-member and is slidably connected to the latter between a pair of guide-strips 9. These strips are suitably secured to the outer face of the base-member and permit the extension-member to slide longitudinally either toward or away from the side bar so as to increase or decrease the operative length of the latter. To prevent lateral displacement, each extension-member is provided at its sides with ribs 10 which fit into grooves 11 which are formed in the inner faces of the strips. Each member 8 is held in its assigned position by means of

a latch 12. The latter is provided at its sides with a pair of outwardly projecting lugs 13 which respectively cooperate or interlock with a pair of series of open-ended slots 14 which are formed in the outer faces of the guide-strips 9 and extend longitudinally with respect thereto. The slots of each series are spaced a suitable distance apart, such, for example, as an inch, to permit the extension-members to be locked in substantially any desired position with respect to the base-member 5. Each latch is disposed in a recess 15 which is formed in the upper end of the extension-member to which the latch is attached and is mounted for pivotal movement so that the lugs may be swung out of interlocking relation with the slots when it is desired to shift the extension-member. The pivotal connection for each latch comprises a tongue 16 which is disposed in a transverse slot 17 and a pin 18 on which the tongue is mounted. The pins extend transversely and are suitably mounted in the extension-members. To facilitate movement of the latches, handles or knobs 19 are provided. These handles project outwardly and are suitably secured to the latches. When it is desired to shift the extension-members so that the ladder-frame will be held at a predetermined elevation, the latches 12 will be swung outwardly to disengage or unlock the lugs 13 from the slots in which they are disposed. This renders the extension-members free to be slid into any position desired. When such position is reached, the latches will be pressed inwardly to lock the extension-members in place.

To prevent the latches from being accidently displaced, springs 20 are provided. These springs are anchored to the extension-members adjacent the tongues 16 by screws 21 and are arranged so that their operative force is applied to press the latches inwardly. The springs are preferably of the flat metal type. To prevent the extension-members from being slid outwardly too far for practical purposes, stops 22 are provided. These stops are in the form of bars which extend across and are secured to the guide-strips 9. The bars are disposed in the path of the handles or hooks 19 so as to cooperate with the latter. The lower ends of the extension-members are rounded, as at 23, and are ribbed as at 24, to prevent them from slipping. A groove 25 is formed in the back face of each base-member 5 to accommodate the heads of the screws b^4.

While the devices have been described as being adapted for use with a stepladder, it is to be understood that they may be used with a ladder or extension ladder so as to adapt the latter for use on uneven ground. This may be accomplished by adjusting one of the extension-members relatively to the other to fit into depressions, etc., in the ground.

The invention exemplifies devices which may be applied as units to stepladders and the like and are operable as extensions. The invention also exemplifies devices of this character which are simple in construction and embody only a comparatively few number of parts.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. A device for the purpose specified comprising a base provided with means whereby it may be secured to one end of a ladder and a pair of guide-members, an extension-member slidable between the guide-members, each of the latter having a longitudinal series of open ended slots formed in one face thereof, and a latch pivotally connected to the extension-member and provided with a pair of laterally projecting lugs adapted to interlock with the slots to secure the extension-member in an assigned position.

2. A device for the purpose specified comprising a base provided with means whereby it may be secured to one end of a ladder and a pair of guide-members, an extension-member slidable between said guide-members, each of the latter having a longitudinal series of open-ended slots formed in one face thereof, a latch pivotally connected to the extension-member and provided with a pair of laterally projecting lugs adapted to interlock with the slots to secure said extension-member in an assigned position, said latch having an outwardly extending handle adjacent the lugs whereby it may be manipulated into and out of its operative position, and a cross bar secured to the guide-members at one end of the base and cooperable with the handle on the latch for limiting the sliding movement of the extension-member in one direction.

Signed at Chicago, Illinois, September, 1927.

JOHN FRED CZISCHKE.