

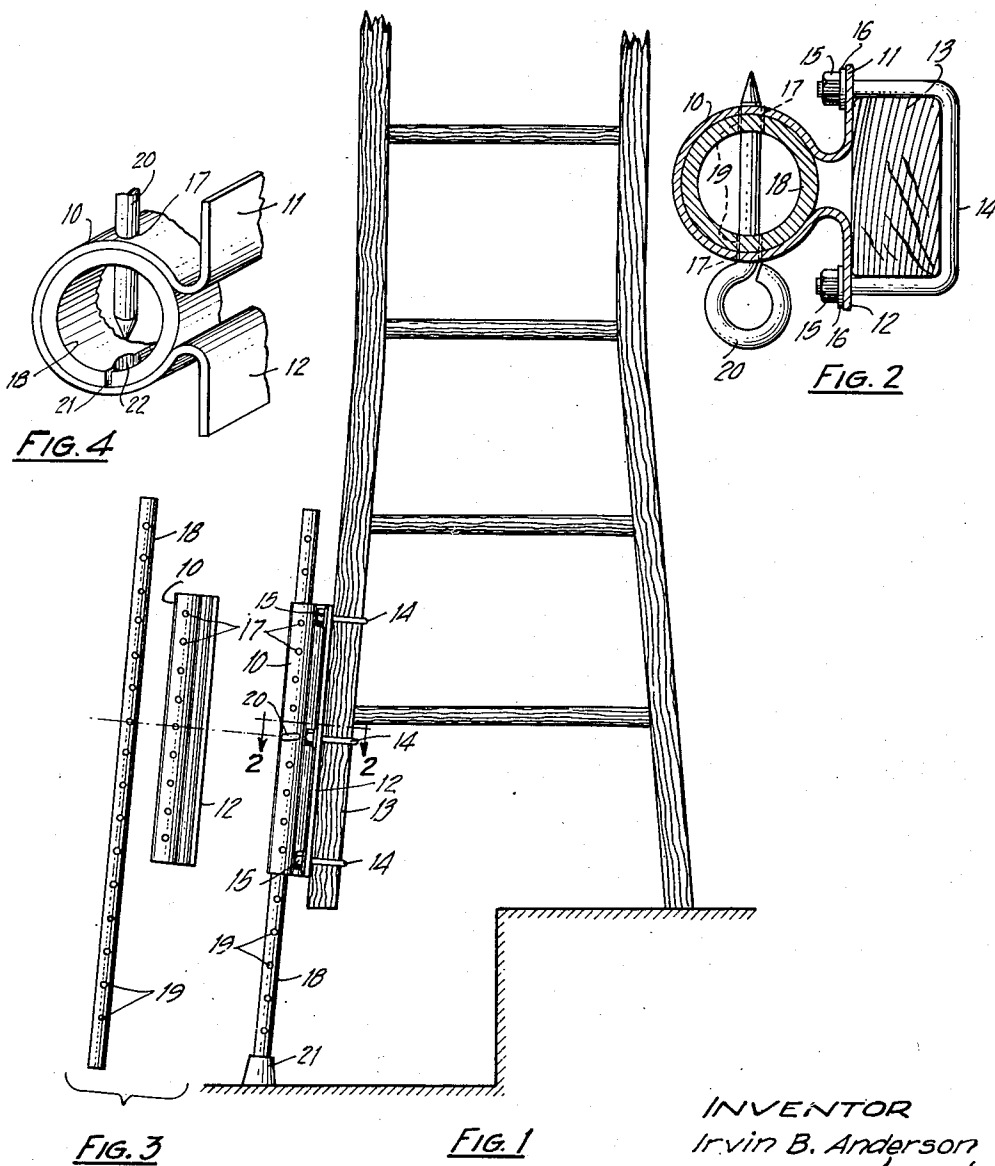
Jan. 8, 1952

I. B. ANDERSON

2,581,782

ADJUSTABLE EXTENSION DEVICE

Filed June 3, 1949



INVENTOR  
Irvin B. Anderson  
*Irvin B. Anderson*  
ATTORNEYS

## UNITED STATES PATENT OFFICE

2,581,782

## ADJUSTABLE EXTENSION DEVICE

Irvin B. Anderson, Oneonta, N. Y.

Application June 3, 1949, Serial No. 96,839

1 Claim. (Cl. 228—63)

1

This invention relates to extension devices and, more particularly, to adjustable extensor devices adapted for use with ladders, ladder-like structures, or other supporting structures intended to be placed on non-planar, uneven or inclined surfaces.

Generally, it is an object of the invention to provide such a device which is economical to manufacture, simple yet sturdy and durable of construction, readily assembled, and adapted readily to be secured in place on a ladder, whereby such ladder can quickly be adjusted in position for use on irregular surfaces.

More specifically, it is an object of the invention to provide such a device which comprises a tubular hanger adapted to be secured to the bottom of a stile of a ladder, the hanger having longitudinally-spaced openings along its tubular portion, an elongated extensor, slidably mounted within the tubular portion of the hanger and also being provided with longitudinally-arranged openings spaced at different distances than the spaced openings in the hanger, whereby openings in the hanger and extensor can be brought into alignment and a locking element adapted to be inserted through the aligned openings to hold the extensor and hanger in fixed position.

Another object of the invention is the provision of such a device comprising a hanger tube adapted to be secured to a stile of a ladder, the tube having an expandable extensor member slidably mounted therein, the hanger and member each having alignable openings therethrough, and means adapted to enter the openings and to expand the member against the inside walls of the tube.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is an elevational view of a device embodying the invention secured to the stile of a ladder and supporting the same in proper position on different levels;

Fig. 2 is an enlarged sectional view taken along

2

the lines 2—2 of Fig. 1 and looking in the direction of the arrows;

Fig. 3 is an elevational view showing the hanger member and elongated extensor member separated from each other, more clearly to illustrate the invention; and

Fig. 4 is a perspective view of a preferred embodiment of the invention illustrating an expandable extensor member cooperatively connected with the hanger portion of the device.

Referring more particularly to the drawing, there is shown a tubular hanger 10 having outwardly-directed wings 11 and 12 abutting the lower portion of a stile 13 of a ladder. The hanger is held in place against the stile by U-bolts 14 which pass around the stile, through the wings 11 and 12, and tightly secured in this position by nuts and washers 15 and 16 respectively on the ends of the bolts.

The hanger has a longitudinal row of spaced holes 17 extending substantially throughout its length on both sides thereof and in oppositely disposed relation.

Within the tubular portion of the hanger is an elongated extensor member 18 which, preferably, is also tubular in construction. This member fits snugly within the tubular hanger 10, but in such a manner that it can be made to slide easily therein. The member 18 is also provided with longitudinally-spaced holes 19 extending substantially throughout its length on both sides thereof and in oppositely disposed relation.

The spacing of the holes in the tubular hanger 10 and the extensor member 18 is of importance. For example, the holes 17 in the hanger should be substantially equi-distantly spaced, but the distances between these holes should be different from the distances between the holes 19 in the member 18. The holes 19 should also be substantially equi-distantly spaced. Preferably, the distances between the holes 17 are less than the distances between the holes 19. Assume for example, that the holes 17 are spaced  $1\frac{3}{4}$  inches apart, and that the holes 19 are spaced 2 inches apart. It will thus be possible to obtain an adjustment of the extensor member 18 in the hanger 10 within  $\frac{1}{4}$  of an inch. This provides a very fine adjustment at the base of the ladder. However, a greater range of adjustment can be obtained depending upon the distance the extensor member 18 is moved through the hanger 10.

When the extensor member 18 has been moved through the tubular hanger 10, and it is felt that the rungs of the ladder will be substantially level when raised to upright position, certain of the

3

holes in the hanger and the extensor will be brought into alignment. A locking pin 20 is then passed through the aligned holes in both members, whereby the device will be securely locked in position. The ladder is then placed in upright position and any further slight adjustment can readily be obtained by withdrawing the pin and bringing succeeding holes of the extensor member and hanger into alignment and the pin re-inserted into the newly aligned holes.

The end of the extensor member 18 may be provided with a suitable cup or cap 21, of flexible composition, such as rubber, to prevent slipping or marring of surfaces. Such a cap can readily be removed to expose the open end of the tubular extensor 18 for extra traction on icy surfaces.

The holes, or openings, in both the tubular hanger and the extensor member may be spaced any distance apart. Whether the spacings of the openings in the extensor member are greater than the spacings of the openings in the tubular hanger member, or vice versa, is immaterial, but it is important that the spacings of the openings in each member should not be the same, otherwise the fine adjustment made possible by the invention will not be available.

In the modification shown in Fig. 4, the hanger tube 10 is provided with openings 17 of a size sufficient to accommodate the pin 20. Along one side of the extensor tube 18, the openings 19 are also of the same diameter as the openings 17, whereby to accommodate the pin 20. However, the extensor tube 18 is provided with a longitudinal seam or slot 21 opposite the openings 19. Along this seam are provided openings 22 which are of smaller diameter than the diameter of the pin 20. When selected holes, as above described, are brought into alignment, and the pin 20 inserted therein, it will, as it enters the opening 22, expand the extensor tube 18 against the inside walls of the hanger tube so that a very tight fit is provided. This eliminates "slap" between the tubular members and at the same time the extensor member 18 exerts a locking action against the pin positively holding it in position.

Such a device has many advantages. The action between the parts is positive and safe. No springs or catches are required. The device can quickly and easily be attached to the stile of any standard ladder without altering or weakening the ladder structure by drilling holes therein and passing bolts therethrough to secure the device

4

in position. The device can instantly and simply be adjusted to very small variations in terrain, yet variations of any other desired magnitude can be obtained.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

An adjustable extensor device adapted for a ladder, which comprises a hanger tube, having spaced openings therein, adapted to be secured to the bottom of a stile of said ladder, an extensor tube, having a longitudinal seam, with spaced openings therethrough along one side thereof, and oppositely-disposed spaced openings along said seam, said extensor tube being slidably disposed within said hanger tube, the distances between the openings in said hanger tube and said extensor tube being different, whereby movement of said extensor tube will align openings therein with openings in the hanger tube, and a locking pin of greater diameter than the openings along said seam adapted to enter said openings and to expand the extensor tube against the hanger tube, said device being so constructed and arranged that the ladder can be placed firmly in proper position on irregular, inclined and stepped surfaces.

IRVIN B. ANDERSON.

#### REFERENCES CITED

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

#### UNITED STATES PATENTS

| Number    | Name          | Date          |
|-----------|---------------|---------------|
| 864,329   | North         | Aug. 27, 1907 |
| 891,965   | Thomas        | June 30, 1908 |
| 1,373,276 | Telmosse, Jr. | Mar. 29, 1921 |
| 1,832,782 | Leupen        | Nov. 17, 1931 |