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a part interest

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[54] EXTENSIBLE FOOT FOR LADDERS
7 Claims, 4 Drawing Figs.

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203, 204, 207

ABSTRACT: An extensible foot for ladders for adjustment of the ladder to uneven and slanting terrain, comprising a channel fixed on at least one of the sidepieces of the ladder, by a bolt passing through one of the crosspieces thereof, and a lockable sliding channel in the fixed channel.

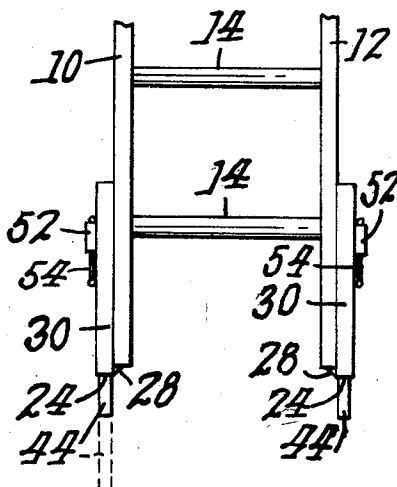


Fig. 1

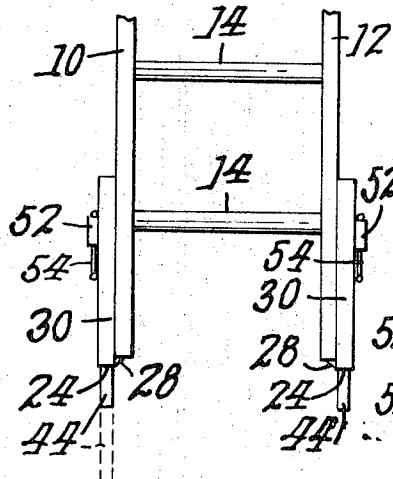


Fig. 2

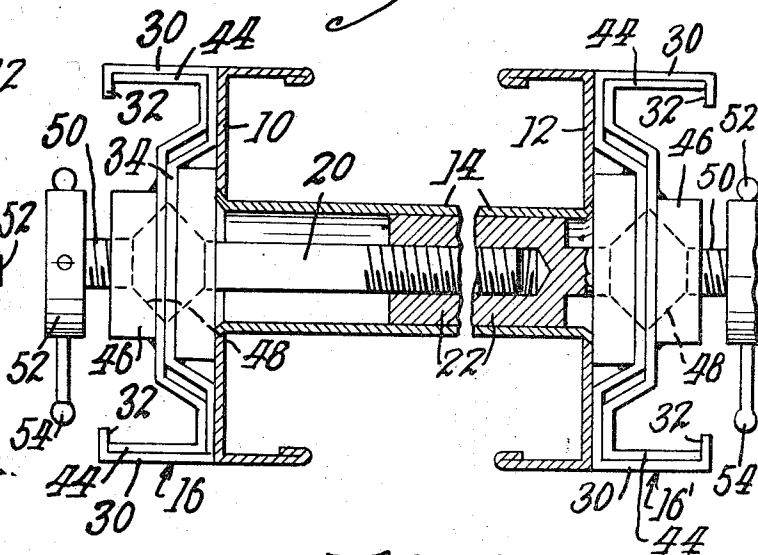


Fig. 3

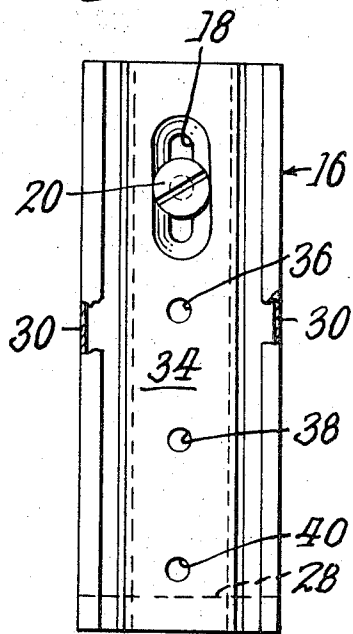
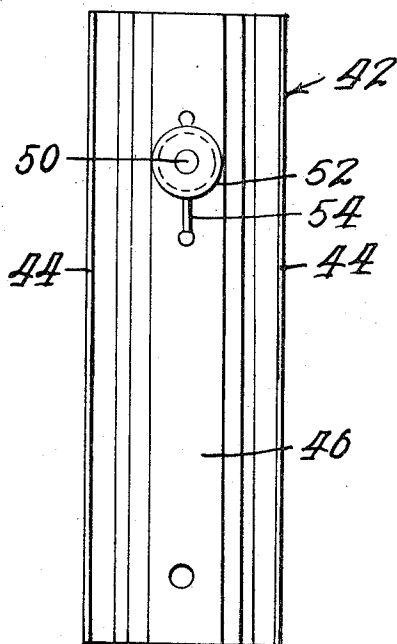


Fig. 4



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EXTENSIBLE FOOT FOR LADDERS

BACKGROUND OF THE INVENTION

There have been many suggested extensible ladder feet but in most cases they are complicated in construction and operation, or too expensive to justify the same, or in fact impractical; and it is the general object of the present invention to provide an extensible foot for either one or both crosspieces of a ladder so that an adjustment of any degree desired may be achieved by a simple loosening of a bolt, adjustment of the extensible foot, and retightening of the bolt.

SUMMARY OF THE INVENTION

In the case of an aluminum ladder which has crosspieces that are hollow for instance, or are channel shaped, this invention provides a two-piece bolt to extend from one sidepiece to the other through the channel or hollow crosspiece and to secure at its ends a channel member having side edge flanges extending from the sidepiece of the ladder outwardly thereof and including means to permanently secure this channel in the desired location relative to the lower end of the sidepiece of the ladder, and a slidable channel in the fixed channel.

The first-named, permanently positioned channel has inwardly directed lips at the ends of its edge flanges and the slidable channel is provided with means for applying pressure to the bottom of the fixed channel, the lips on the fixed channel acting as reaction points to quickly and easily secure the adjustable channel at the desired position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in elevation of a lower part of a ladder with the present invention applied at the bottom ends of each of the crosspieces thereof and showing one only of the devices extended;

FIG. 2 is a section on an enlarged scale on line 2-2 of FIG. 1;

FIG. 3 is a view in front elevation of the fixed channel, parts being broken away and in section; and

FIG. 4 is a view in front elevation showing the adjustable channel.

PREFERRED EMBODIMENT OF THE INVENTION

As shown in FIGS. 1 and 2 there are indicated in general sidepieces of an aluminum ladder which may comprise any kind of conformation but are here shown as inwardly directed or facing channels 10 and 12. These are connected by the crosspieces or rungs 14 that may be tubular members, channels, or the like, and they are secured at their ends as is well known in the art to connect the sidepieces. There are as many crosspieces or rungs as may be found necessary.

A channel generally indicated by the reference character 16 is provided with a countersunk elongated slot 18, see FIG. 3, which receives a partial bolt 20 which extends through the tube or channel 14 to a predetermined extent where it is engaged with a plug or the like 22 extending in from the other sidepiece as at 12, see FIG. 2. This bolt also has a countersunk head as shown in order to connect another like channel 16' to the side sidepiece 12. The reason for the elongated slot 18 is to provide for positioning the channels 16, 16' where desired, i.e., slightly passing the lower ends of the sidepieces. The bottom edges of the permanent channels 16, 16' are indicated at 24.

At the lower ends of the channels 16 and 16', it is preferred that a lip 28 be provided for the purpose of positioning the lower end 26 of the respective sidepiece.

The channels 16 and 16' are provided with side edge flanges 30, 30 terminating in inwardly directed lips 32, 32 for a purpose to be described. The bottoms 34 of the respective channels may be provided with various holes as at 36, 38 and 40 for the reception of fasteners once the channels have been located by bolt 20, 22 in the required or desired position.

It will be clearly appreciated that either the permanent channel 16 or that at 16' may be utilized or both of them may be utilized, and in any event channel 16 or 16' each contain an interior slidable channel generally indicated by the reference numeral 42. This channel 42 has upstanding edge flanges 44, 44, the ends of which are received under the lips 32 so that the slidable channels 42 are snugly and slidably received, each in its permanent channel 16 or 16'.

Each channel 42 has an interior permanently attached block 46 containing the head 48 of a bolt 50. The bolt 50 is provided with a member 52 adapted to be turned by means of handle 54 and when this handle is turned for instance in a clockwise direction, the head 48 bears against the bottom 34 of channel 16 or 16' as the case may be, tending thereby to thrust the respective channel 42 outwardly from the bottom 34. The free edges of the side flanges 44 bear tightly against the inturned lips 32, 32 locking the slidable channel in the desired position.

As shown in FIG. 1, the handle 52 for the left-hand channel has been loosened and the channel 42 adjusted so that its lower end 56 is extends outwardly thereof at the bottom of channel 16 providing for mounting the ladder on an incline or irregular surface to this extent, whereas the similar channel 42 in the other permanent channel 16' is located with its lower end equivalent to or equal with the lower end 24 of the channel 16'.

It will also be appreciated that the same construction can be used with wooden ladders also, in which case the bolt construction 20, 22 preferably underlies one of the wooden crosspieces of such wooden ladder, but otherwise the structure is the same as described with the parts of the bolt 20, 22 extending through holes in the sidepieces of the wooden ladder.

I claim:

1. An extensible foot for ladders of the type having a pair of sidepieces with connecting crosspieces, and comprising a channel-shaped member, means substantially permanently connecting the same to one of the sidepieces of the ladder adjacent the lower end thereof, said channel comprising a bottom and spaced side flanges at the edges of the bottom, and inwardly directed lips at the free end edges of said flanges; and a slidable channel mounted in said first-named channel, said slidable channel including edge flanges which nest in the first-named channel and slidably impinge upon the inside surfaces of the lips on the flanges thereof, and means on said slidable channel providing for exerting a force on the bottom of the permanent channel thereby tending to move the slidable channel in the direction away therefrom, clamping the edges of the flanges of the slidable channel at the under side surfaces of the lips on the flanges of the permanent channel.

2. The extensible foot for ladders as recited in claim 1 including means on the permanent channel for engagement with the extreme lower end portion of the sidepiece to which it is attached and locating the permanent channel with respect thereto.

3. The extensible foot for ladders as recited in claim 1 wherein the means for securing the permanent channel to the ladder comprises a two-part bolt, the parts thereof being adjustably connected together and each part including a head, one of the heads being adapted to bear on said permanent channel bottom and hold it against the sidepiece of the ladder.

4. The extensible foot for ladders as recited in claim 1 wherein the means for securing the permanent channel to the ladder comprises a two-part bolt, the parts thereof being adjustably connected together and each part including a head, one of the heads being adapted to bear on said permanent channel bottom and hold it against the sidepiece of the ladder; said two-part bolt extending from one sidepiece of the ladder to the other sidepiece of the ladder and being engaged therewith.

5. The extensible foot for ladders as recited in claim 1 wherein the ladder is of metal and the crosspiece receives the means securing the permanent channel to the ladder.

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6. The extensible foot for ladders as recited in claim 1 wherein the ladder is of metal and the crosspiece comprises a bolt.

wherein the ladder is of metal and the crosspiece comprises a bolt, said bolt extending across the ladder and being concealed by the crosspiece.

7. The extensible foot for ladders as recited in claim 1

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