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LADDER FOOT EXTENSION.

APPLICATION FILED MAY 5, 1920.

1,377,543. Patented May 10, 1921.

Fig. 1.

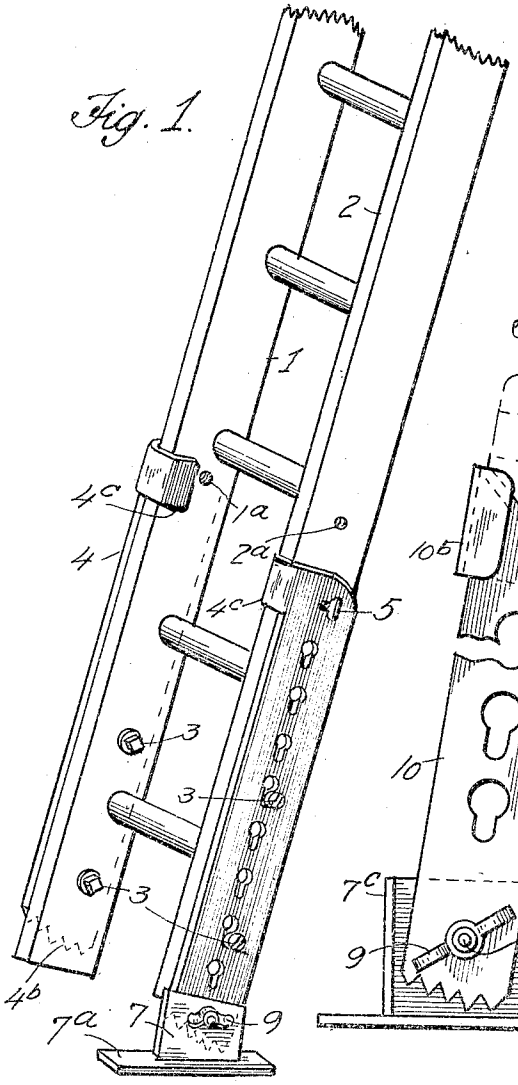
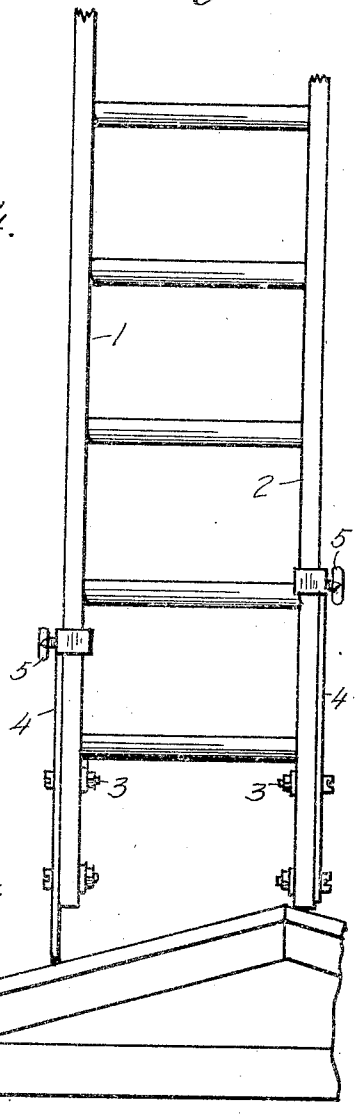


Fig. 4.

Fig. 3.



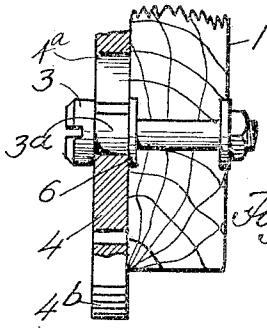


Fig. 2.

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LADDER-FOOT EXTENSION.

1,377,543. Specification of Letters Patent. Patented May 10, 1921.

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To all whom it may concern:

Be it known that I, OSCAR A. ALM, a citizen of the United States, residing at Binford, in the county of Griggs, and State of North Dakota, have invented new and useful Improvements in Ladder-Foot Extensions, of which the following is a specification.

This invention has relation to a ladder, and refers more particularly to devices for adjusting such ladder to uneven surfaces. Persons having constant use for a ladder, such as painters, tinsmiths, or other building artisans, are daily confronted by the problem of finding a sure foothold for their ladder. The ground is frequently uneven enough to cause the foot of the ladder to slip, and this condition is exaggerated when the ladder is placed on a surface which slopes in more than one direction, such as for example a porch roof.

With these conditions in view the object of my invention is the provision of devices attachable to the bottom of a ladder for adjusting each leg of the ladder to uneven surfaces A further object is to provide an article of this character which may readily be attached and adjusted without having to resort to tools. Another object is to clamp the device on the ladder in an out of the way position when the ladder is not set up for use, so that the ladder may be transported without danger of losing the attachment. Finally I aim to provide a broad shoe on my device for the purpose of preventing the ladder from sinking into soft surfaces.

Hereinafter will now be described structures in which are embodied combinations of the advantageous features of the invention, and the said structures are illustrated in the appended drawing, of which:

Figure 1 is a perspective view of the bottom portion of a ladder embodying the invention,

Fig. 2 shows, in cross section, the foot of one of the ladder legs with my device attached, as in practice,

Fig. 3 illustrates a ladder adjusted to the sloping surface of a porch roof,

Fig. 4 is a side elevation of my device as it appears detached from the ladder.

Referring in the first instance to Figs. 1 and 2, it is noted that the legs 1 and 2 of the ladder are perforated to receive a series of bolts 3 for supporting the adjustable devices 4 of my invention. Each of the said devices comprises, in this case, a strong metal plate having a plurality of key-hole shaped perforations 4^a, and the parts are so proportioned that the circular portion of the perforations will pass over the heads of the said bolts 3, when attaching the devices, whereupon the latter are pushed upward, thereby causing the body portion of the said bolts to engage the narrow extensions of the key-holes. Nothing further is required in order to attach the devices, which may be adjusted, as described, to suit all manner of operating conditions. Such adjustment is shown in Fig. 3, which, as stated, exhibits the ladder placed on a sloping porch roof. Above the said key-holes is seated, in each plate, a set screw 5 capable of engaging threaded perforations 1^a, 2^a of the ladder legs. When the extension plate 4 is not in use, or not needed, the said plate is affixed in the lowermost key-holes, whereby the foot of the plate takes a position above the foot of the ladder leg, and the said set screw 5 then comes into alinement with said ladder perforations 1^a, 2^a. This adjustment is shown on leg 2 of Fig. 3. It is noted that the plate of leg 1 is extended to support the ladder in a perpendicular position.

The bottom of the plates is conveniently roughened, as indicated by the teeth 4^b, for the purpose of insuring a good foot-hold on a hard or slippery surface. The top of the plate 4 is bent over to form a guide 4^c on the edge of the ladder, and also for the purpose of strengthening the structure. The bolt 3, as best shown in Fig. 2, is preferably made with a shoulder portion 3^a abutting a washer 6, for the purpose, and maintaining a sufficient operating space for the extension plate 4. But, of course, any other suitable construction may be substituted, so long as the plate is firmly locked in place and is easily slidable in and out.

The extension plates are necessarily made of rather thin metal, and for this reason they are apt to sink into the surface, when the ladder is set on soft ground. In order to prevent this occurrence I provide a shoe for the devices, and such shoe is indicated by the reference numeral 7 in Figs. 1 and 4. The said shoe is made with a broad bottom plate 7^a, and for strength it may conveniently be made with flanges 7^b, 7^c. It carries

a stud 8, which engages perforations of the plate 4, and a wing nut 9 serves to combine the parts. In this, or other suitable manner, the shoe is rigidly affixed to the extension plate. As the ladder may not always be placed at the same angle it is desirable to leave room enough between the said flanges to swing the shoe until it rests squarely on the ground, and so a sufficient amount of clearance is allowed, as clearly indicated in Fig. 4.

Various modifications may be made in the structures described, without thereby departing from the spirit of the invention. Thus I may conveniently make the extension plate from a straight strip of metal 10, see Fig. 4, in which case the top of the said strip is folded over diagonally, as indicated, in order to provide the guide 10^b. The dotted outline at the top of the strip 10 illustrates the shape of the said strip before folding.

I claim:

1. In a ladder, a series of bolts longitudinally spaced on the ladder legs, a pair of foot extension plates having keyholes for attachment on said bolts, and a set screw in said plates and alinable with threaded perforations of the ladder legs for clamping said plates to the legs in elevated inoperative position.

2. A ladder foot extension comprising a body portion having perforations for adjustable attachment to the ladder legs and provided with guides slidable on and encompassing the front edges of the ladder legs, and a set screw seated in said body for tightly clamping the device on the ladder in elevated out of the way position.

3. In a ladder, a series of bolts longitudinally spaced on the ladder legs, a pair of foot extension plates having key holes for adjustable attachment on said bolts, a stud at the bottom of each plate, a foot plate mountable on said stud, and a nut engaging said stud for clamping said foot plate in adjusted position.

4. A ladder foot extension comprising a body portion having perforations for adjustable attachment to the ladder legs, provided with guides slidable on and encompassing the front edges of the ladder legs and having serrated bottom surfaces to prevent skidding on smooth surfaces, in combination with means for rigidly clamping said extensions on the ladder legs in elevated out of the way position.

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