

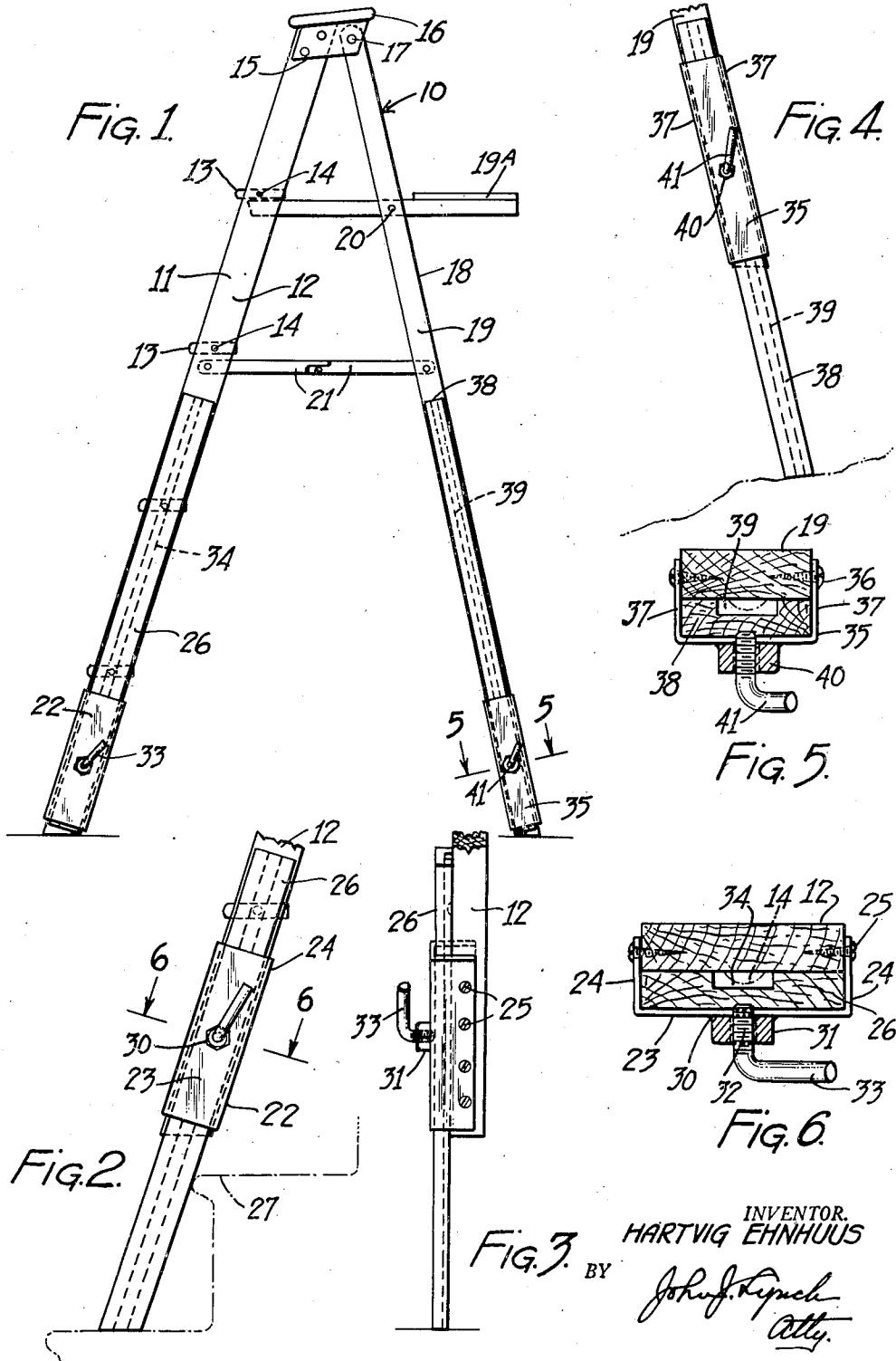
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EXTENSION STEPLADDER

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2,481,581

EXTENSION STEPLADDER

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1 Claim. (Cl. 228—63)

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This invention relates to ladders and in particular to a type that can be lengthened for use on a supporting surface that is uneven.

A particular object of my invention is to provide a device that can be attached to ladders in present use, or can be applied to ladders in the course of manufacture to provide an extension for either the front or back legs thereof or both, or to provide an adjustable feature that can be used to vary the length of any one of the four legs of the ladder when the same is used on a very uneven surface.

A further and equally important object of my invention is to provide in connection with the foldable step ladder, a safety device that permits use of the ladder on stairways so that ceiling lights and walls may be painted or cleaned without the necessity of putting up a supporting scaffold in the stair well which is necessary where the present ladders are employed that have no adjustable leg features incorporated.

A still further object of my invention is to make up a device that can be applied to the legs of the ladder by the purchaser of the device without complicated effort or instructions; to provide a device that is simple in structure, can be made and sold at a moderate cost, will provide a substantial support without slippage of the parts and will effectively lock the extension parts in any adjusted position securely so that collapse will be prevented.

With these and other objects in view, the invention comprises certain constructions herein-after described and then particularly pointed out in the claim and a preferred embodiment of my invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view in side elevation of a folding type step ladder showing the application thereto of my invention,

Figure 2 is an enlarged fragmentary view of the lower end of one of the front legs showing the extensional use of the device on a stairs.

Figure 3 is a view taken from the rear of the leg as illustrated in Figure 2 showing the attachment of the guide channel forming a part of my invention,

Figure 4 is a view somewhat similar to Figure 2 showing the back leg extended to compensate for an uneven surface,

Figure 5 is an enlarged section taken on the line 5—5 of Figure 1, and

Figure 6 is an enlarged section taken on the line 6—6 of Figure 2.

Referring to the drawing in detail, 10 indicates

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a step ladder of the folding type comprising the front leg structure 11 including sides 12 and steps 13 connecting the latter and secured thereto by the tie rods or connecting bolts 14, as well as other suitable step fastening means which is not deemed necessary to show.

The sides 12 are secured by a brace plate 15 to the top 16 of the ladder, the brace plate providing means in which are pivotally mounted as at 17, the rear or bracing leg structure 18 of the ladder, which consists of the side pieces 19 suitably joined and carrying a tray 19A which folds about the pit 20; and foldably associated with the front leg structure 11 by the hinge arms 21.

In order to extend or lengthen the front leg structure 11, I have provided at the lower end of each of the front legs or sides 12 a guide channel 22 which is long enough to constitute a sleeve and is shaped in cross section as shown in Figure 6 to present a side portion 23 and edge flanges 24 in opposed relation to firmly fit the side of the legs and the edges thereof. The channels are held in place by the screws 25 or other fastening means to provide a passage through which is mounted for sliding movement an extension member 26 which is exactly as wide as the side piece of the ladder and snugly fits within the passage formed by the channel and the side of the leg 12 so that it can be manually moved up and down for adjustment beyond the end of the leg 12 as shown in Figure 2, to extend the ladder structure at the front thereof in the event that the ladder is to be used on a stairs for instance. It will be noted that a step 27 of the stairs will provide a step for the ladder in its extended position. The channel member 22 has welded or otherwise fastened thereto as at 30, an internally threaded nut 31 which is aligned with a similar opening in the guide channel to receive a threaded end 32 of an adjusting handle 33 which is manipulated to jam the extension piece 26 and securely hold the same in its adjusted position. The channel member may be made of any suitable gauge sheet metal and the extension member on its under side is grooved longitudinally thereof as at 34 to pass over any projection on the sides 12, such as the bolt heads 14 which hold the steps in place.

The side pieces or legs 19 of the rear or bracing leg structure may be extended in the same manner as are the front legs and to this end, I mount channel members 35 on each of the lower ends of the legs 19 and secure them thereto by screws 36. The channels 35 consist of the side portions 37 attached to the sides of the legs 19 to provide a passageway through which can slide an extension

leg 38 to increase the length of each leg 19, the extension being grooved on its inner face as at 39 to pass over any obstruction on the side of the legs 19. A threaded nut 40 is welded or otherwise attached to the channel in alignment with an opening in the latter to permit the use of a threaded adjusting handle 41 for the purpose of holding the extension leg at any desired position of adjustment. The extension legs 38 fit snugly into the channel guides so that there is no sidewise play that would make the ladder wobble and endanger the person working on the same. The length of the guide channel is a factor in bracing the ladder and making the extension legs safe at every degree of adjustment as the channels firmly hold the extension legs at the sides and edges to provide true sliding movement.

My invention is not to be restricted to the precise details of construction shown since various changes and modifications therein may be made without departing from the scope of the invention or sacrificing the advantages derived from its use.

What I claim is:

The combination with a step-ladder having foldable frame parts including relatively pivoted front and rear flat strip legs, means for connecting the rear legs together and steps for connecting the front legs together: of an elongated metal channel piece substantially U-shaped in cross section and extending upwardly along each leg from the lower end thereof to provide an extended sleeve having a side portion paralleling the outer side surface of the leg and opposite edge flanges fitting over and against the front and rear edge surfaces of the leg, said channel being as wide as the leg, means for securing the edge flanges to the front and rear surfaces of the leg to space said side portion of the channel piece

from the outer surface of the leg to present a vertical open ended passage alongside said leg, an elongated flat extension piece substantially as wide as the leg for frictional abutment throughout its contact surface with said leg and extending through said channel passage and being substantially longer than said channel piece said side portion having an opening therein, an internally threaded nut secured to said side portion in alignment with said opening, a handle having an end threaded for adjustable engagement in the nut and jamming engagement with the extension piece to force the under surface thereof in that portion of its length in engagement with the leg into frictional holding contact with the outer side surface of the leg and to cause the side edges of the channel piece to frictionally engage the side edges of said extension piece whereby the extension may be frictionally secured at any position of adjustment with respect to that portion of said leg, engaged thereby, and said channel piece, said extension piece and the holding means associated therewith being wholly mounted on the side and outer faces of the legs of the ladder to maintain the inner faces of said legs unobstructed.

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