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LADDER STEP

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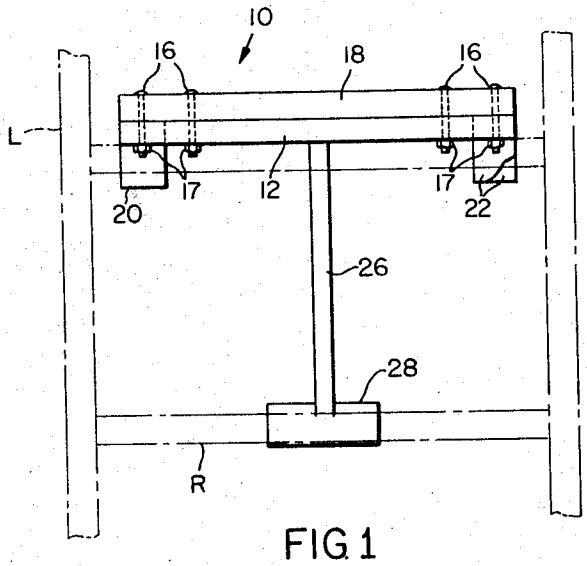


FIG. 1

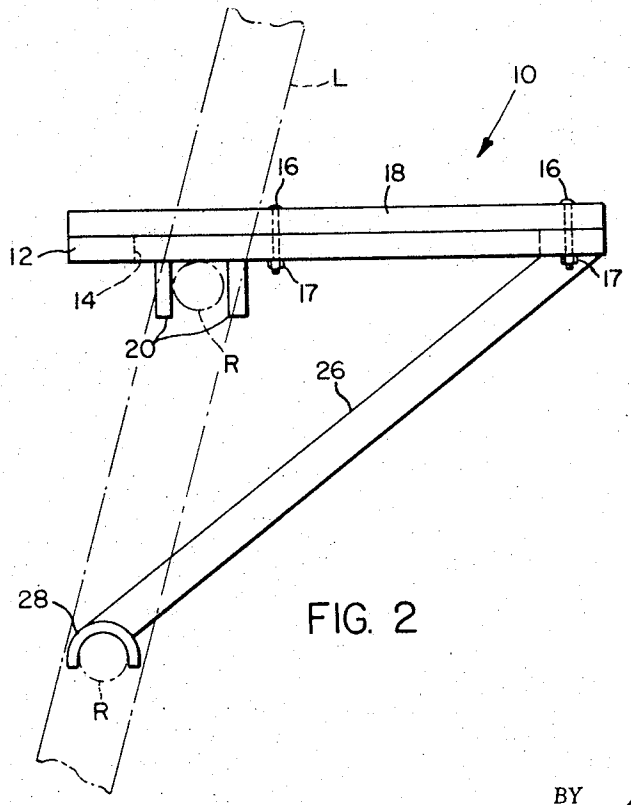


FIG. 2

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LADDER STEP

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ABSTRACT OF THE DISCLOSURE

To permit a man to stand erect on a ladder, a platform or step is provided having a plurality of clips or grips for releasably supporting the platform on adjacent rungs of a ladder, when the ladder is in use. Two spaced grips project downwardly from opposite ends, respectively, of the platform adjacent its forward edge to straddle one rung of the ladder, a leg or brace projects downwardly from the platform medially of its rear edge, and a flexible half-round foot on the lower end of the brace releasably supports the platform from the next lower rung of the ladder.

This invention relates to ladders, more particularly to a removable step or platform, which is attachable to the rungs of a ladder, when the ladder is in use, to form a generally horizontal support upon which a person may stand safely.

Most ladders, and particularly extension ladders, have circular rungs, which form the steps of the ladder. These rungs can be very uncomfortable for the person who must stand thereon for any extended period of time during the use of the ladder. Moreover, because the rungs are circular in cross section, they present very little surface area for contact with the shoes of the person standing on the ladder, so that it is quite easy for one's foot, or feet, to slip from the rungs. For this reason also, it is difficult for one using the ladder to lean very far from one side or the other of the ladder.

Efforts have been made to obviate these disadvantages by changing the rungs of the ladder. The conventional collapsible stepladder, for example, has flat steps or treads, but it cannot be made conveniently in heights much above twelve to fifteen feet. Removable stands or platforms upon which the user of a ladder may stand, have also been developed, but have not proved satisfactory.

The primary object of this invention is to provide a removable step or platform, which may be attached to a conventional ladder having circular rungs, to provide therefor, when the ladder is in use, a flat, generally horizontally disposed support upon which the person using the ladder may stand safely and comfortably.

Another object of this invention is to provide a removable step or platform of the type described, which is substantially less expensive and more compact than prior such steps.

Other objects of the invention will be apparent hereinafter from the specification and from recital of the appended claims, particularly when read in conjunction with the accompanying drawing.

In the drawing:

FIG. 1 is a front elevational view of a removable ladder step made in accordance with one embodiment of this invention, and illustrating in phantom by broken lies part of a ladder upon which the step is adapted to be mounted; and

FIG. 2 is an end view of this step, the ladder again being shown in phantom by broken lines.

Referring now to the drawing by numerals of reference, the removable ladder step or platform **10** comprises a rigid, rectangular frame **12** around a central rectangular opening **14**. Secured on top of frame **12** by conventional screws **16** and nuts **17** is a flat plate or board **18**. Secured to the bottom of frame **12** adjacent the front thereof to project downwardly therefrom adjacent opposite ends thereof, respectively, are two pairs of identical, spaced, laterally aligned blocks **20** and **22**, respectively, which constitute clips or grips.

Secured at its upper end to the bottom of frame **12** rearwardly of the blocks **20** and **22**, and substantially medially of the rear edge of the frame, is a leg or brace **26**, to the lower end of which is fixed a flexible half-round shoe or socket **28**, which may be made of rubber and which in cross-section is inverted U-shaped in configuration.

In use the forward edge of frame **12** is positioned over one rung R of a ladder L, so that each pair of blocks **20** and **22** straddles this rung adjacent opposite ends thereof. The flexible shoe **28** is then engaged over the top of the next lower rung R in the ladder, so that the plate **18** will be disposed substantially horizontally, when the ladder is in use. In this position the person using the ladder can stand on the board **18** safely and comfortably. Moreover, the step **10** can be shifted upwardly and downwardly on the ladder for support by any two adjacent rungs thereof.

In view of the foregoing, it will be apparent that the instant invention provides a relatively simple and inexpensive step, or platform, which obviates much of the discomfort and risk heretofore associated with extension ladders and the like. Step **10** utilizes, in essence, three-point loading, since its legs transmit part of the weight of the person thereon to the center of the rung engaged by the shoe **28**, and part to opposite ends, respectively, of the next higher rung on the ladder. The flexible shoe **28** is somewhat larger than the diameter of a rung to provide enough play to permit the shoe **28** to fit differently sized rungs; and the blocks **20** and **22** of each pair are spaced far enough apart to accommodate therebetween any conventional ladder rung. Hence, the device can be used on ladders having different sized rungs. Moreover, although not illustrated, it will be apparent to one skilled in the art that the leg **26** may be made longitudinally adjustable by any conventional means to suit the distance between adjacent rungs of the ladder upon which the step is to be mounted.

A principal advantage of the invention herein is that the major portion of platform **18** projects rearwardly and beneath the upper end of the ladder when in use. Thus, only a small portion of the platform **18** projects outwardly (to the left in FIG. 2) into the path of travel of the person moving up or down the ladder, therefore providing minimum interference with such travel.

While the invention has been described in connection with a specific embodiment thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as fall within the scope of the invention or the limits of the appended claims.

Having thus described our invention, what we claim is:

1. A removable step for use on a stepladder, comprising

a rectangular frame,

two pairs of spaced blocks extending vertically downwardly from opposite sides, respectively, of said frame adjacent and parallel to the front edge thereof, with the blocks of one of said pairs being laterally aligned with the blocks of the other of said pairs,

a rigid brace secured at its upper end to the underside

of said frame substantially medially of the rear edge of said frame, and extending diagonally beneath said frame in a plane disposed medially of the sides of said frame,

an inverted, U-shaped socket member secured to the bottom of said brace, and

a plate secured on top of said frame,

said socket member being releasably engageable over one rung of a ladder, and said two pairs of blocks being engageable in straddling relation with the next highest rung of the ladder, thereby to support said plate generally horizontally above said next highest rung with the major part of said plate disposed at the rear of said ladder when the ladder is in use,

the distance between said pairs of blocks and the rear edge of said plate being substantially greater than the distance between said pairs of blocks and the front edge of said plate, whereby said plate defines a step at the rear of said ladder of substantial dimension for a person to stand on, when said step is in use.

2. A removable step as defined in claim 1, wherein said socket member registers approximately vertically with said forward edge of said plate, when the step is in use, so that said major portion of said plate then projects rearwardly of the ladder, and only a minor portion of the plate projects forwardly into the path of travel of the person moving up or down the ladder.

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