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J. J. BARTLEY
AUXILIARY STEP AND SUPPORTING BRACKETS
FOR ATTACHMENT TO LADDERS
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2,804,355

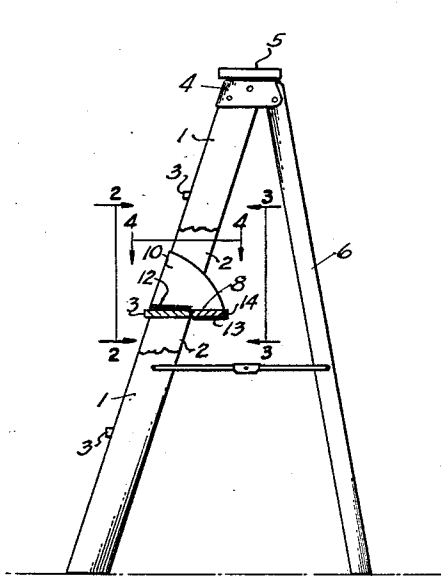


Fig. 1

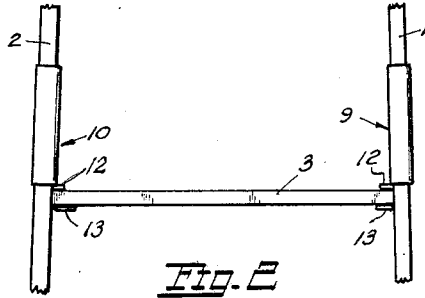


Fig. 2

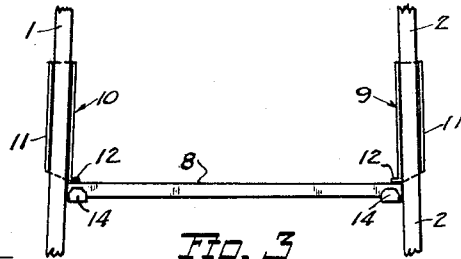


Fig. 3

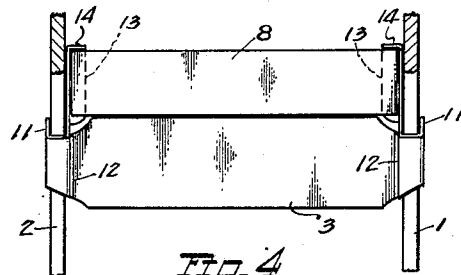


Fig. 4

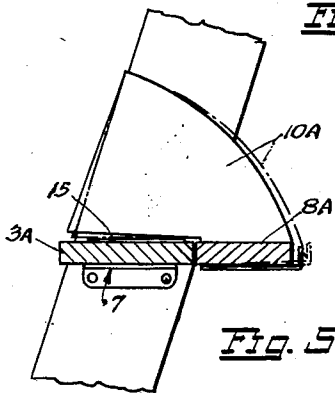


Fig. 5

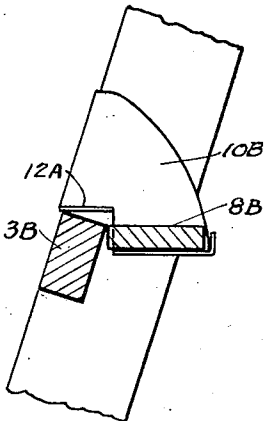


Fig. 6

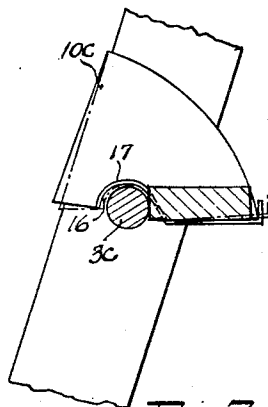


Fig. 7

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AUXILIARY STEP AND SUPPORTING BRACKETS FOR ATTACHMENT TO LADDERS

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1 Claim. (Cl. 304—31.5)

This invention relates to improvements in ladders and more particularly to the steps or rungs thereof.

It is one of the principal objects of the invention to provide an auxiliary step and supporting means therefor which can be quickly and conveniently and securely attached to any step or rung of a ladder in such a manner that the top surface of the auxiliary step will be in horizontal alignment with the top surface of the step or rung to thereby provide a relatively wide step upon which a user can stand naturally and comfortably.

A further object of the invention is the provision of a device of the character described which is of simple, efficient, durable and inexpensive construction and wherein each supporting means for the auxiliary step can be produced by one operation of a stamping and forming die.

The foregoing and other objects will appear as my invention is more fully hereinafter described in the following specification, illustrated in the accompanying drawings, and finally pointed out in the appended claim.

In the accompanying drawing:

Figure 1 is a side view of a conventional ladder with a fragment of its nearest main rail broken away to illustrate an auxiliary step and its support made in accordance with my invention and applied to one of the standard steps of the ladder.

Figures 2 and 3 are enlarged fragmentary views taken approximately along the lines 2—2 and 3—3, respectively, of Figure 1.

Figure 4 is a sectional top plan view taken along the line 4—4 of Figure 1.

Figure 5 is an enlarged fragmentary transverse sectional view through a ladder wherein the ends of the steps are secured to the main rails thereof by means of brackets.

Figure 6 is a view similar to Figure 5 showing a modified form of the invention applied to steps embedded within the front edge of the rails of a ladder.

Figure 7 is a further modification showing the invention applied to round rungs of a ladder.

Referring now more particularly to the drawing:

In Figure 1 reference numerals 1 and 2 indicate the right-hand and left-hand rails of a conventional step-ladder interconnected by spaced apart parallel steps 3 and secured at their top ends to brackets 4 to which is secured a top step 5. The ladder is supported in the usual manner by legs 6 pivotally attached at their top ends to the brackets 4.

In Figures 1 to 4 the ends of the steps 3 are mortised into the side rails 1 and 2, while in Figure 5 the ends of the steps are secured to the rails by brackets 7.

For attaching my auxiliary step 8 to any of the steps 3 I provide a pair of right-hand and left-hand plates 9 and 10, respectively, each being substantially triangular in shape in side view. Each plate lies flat against the inside surface of its respective rail and is turned back on itself as at 11 (see Figure 4) to embrace the forward edge of the rail. That portion of the bottom edge of the plate overlying the step is flanged inwardly as at 12 to prevent said edge portion from cutting into the step when a load is applied to the auxiliary step which is

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carried by an inwardly turned flange 13 along the remaining portion of the bottom edge of the plate. The inner end of each flange 13 is turned upwardly as at 14 to retain the auxiliary step upon the flanges.

In the form of supporting plate 10A shown in Figure 5 the step-protecting flange 12 of Figures 1 to 4 has been eliminated, since the step 3A is protected by the top flange 15 of the step-supporting bracket 7.

In Figure 6 the step-engaging flanged portion 12A of the plate 10B is slightly reduced in length since the rectangular (or square) rung 3B upon which it bears is of less width than that of the flat step 3 of a step-ladder.

In the modification shown in Figure 7 the bottom edge of the plate 10C is cut out and flanged as at 16 and 17, respectively, to loosely embrace but firmly rest upon a round rung 3C of a ladder.

If either or both supporting plates, when placed into engagement with the rails of the ladder, should assume the position shown in broken lines in Figure 5 the weight of a person upon the auxiliary step will cause the plates to pivot about the rear top edge of the step or the top flange 15 of the step-supporting bracket to thereby force the auxiliary step into firm abutment with the main step of the ladder and in horizontal alignment therewith. The same applies to the plate or plates 10B and auxiliary step 8B of the form shown in Figure 6. The same results will be accomplished in the form shown in Figure 7 when the plate or plates pivot about the round rung of the ladder.

While I have shown a particular form of embodiment of my invention I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention. Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

An auxiliary step for a ladder comprising in combination two separate individual plates each turned back on itself along its forward end to provide a rearwardly extending flange and thereby adapted for independent slidable engagement with the rails of a ladder and flanged inwardly along the bottom edge of its forward portion to rest upon a step of a ladder and having the remainder of its bottom edge extending rearwardly therefrom a distance substantially equal to the width of said step, said rearwardly extending bottom edge of each plate being extended downwardly in a vertical plane relative to the top surface of said step and flanged inwardly on a plane horizontal with the bottom surface of said step and the rear end of the last mentioned flange being turned upwardly to provide a limit stop and an auxiliary step carried by the last mentioned flanged portions and supported thereby in a plane horizontal with said step of a ladder and held against horizontal displacement relative to the step of the ladder by said downward extension of the rearwardly extending bottom edge and said limit stop, and whereby any rearward tilting of said plates by a load applied to said auxiliary step will force the forward edge of the auxiliary step against the rearward edge of the step of the ladder.

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