

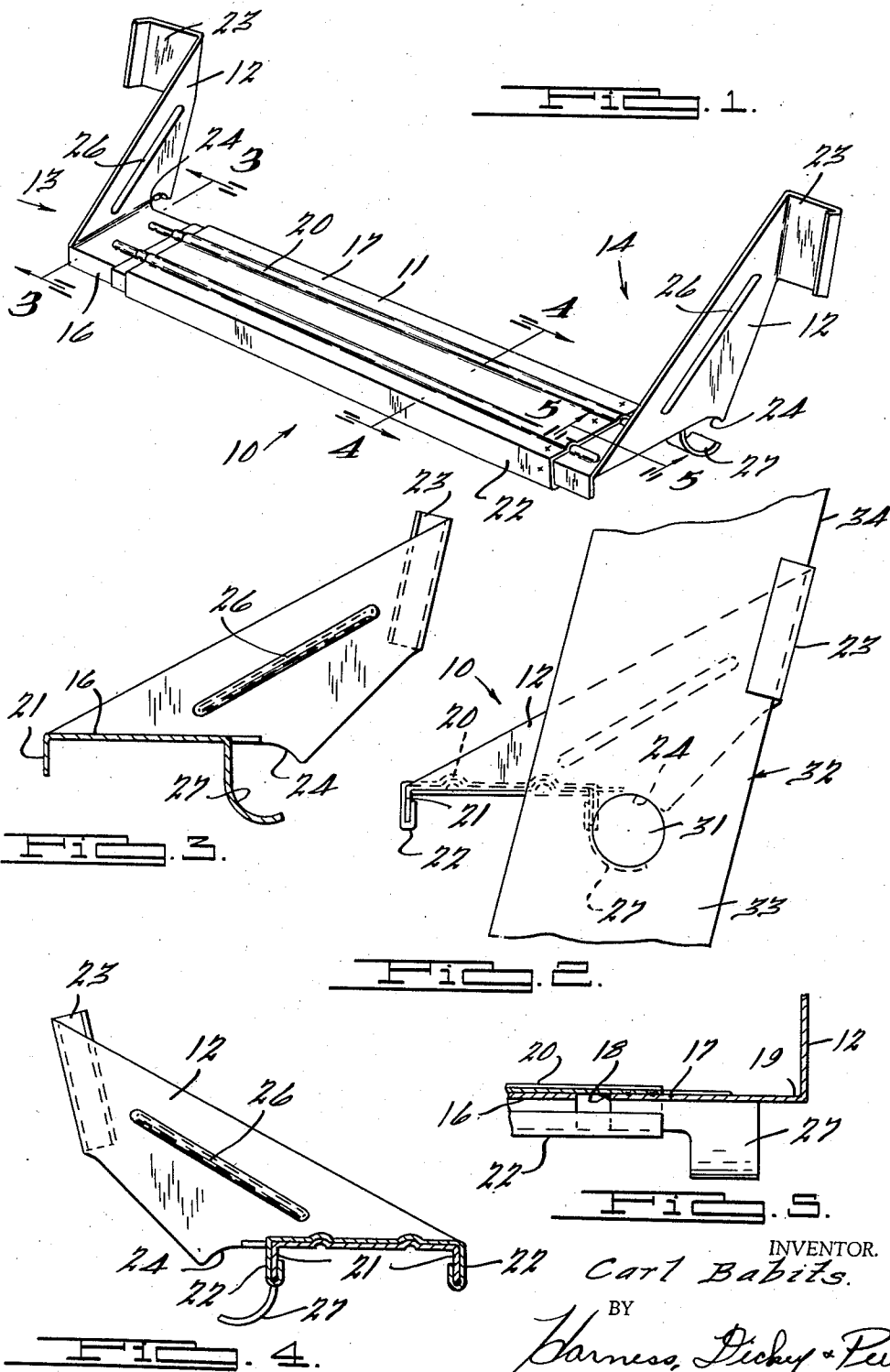
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LADDER STEP

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1

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LADDER STEP

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1 Claim. (Cl. 182—228)

This invention relates generally to ladder steps and more particularly to a step unit adapted to be releasably mounted on a conventional ladder.

Rungs on conventional rung-type ladders do not provide a very satisfactory foot support, especially where prolonged standing on a single rung is required. Accordingly, the primary object of this invention is to provide a step unit which is readily mounted on a ladder at one of the ladder rungs to provide a relatively flat foot supporting surface.

Another object of this invention is to provide a step unit which is simple and rugged in construction, economical to manufacture and readily applied to and removed from a ladder.

Further objects, features and advantages of this invention will become apparent from a consideration of the following description when taken in connection with the accompanying drawing in which:

Fig. 1 is a perspective view of the step unit of this invention;

Fig. 2 is a side elevational view of the step unit of this invention, shown in assembly relation with a portion of a ladder; and

Figs. 3, 4 and 5 are transverse sectional views looking along the lines 3—3, 4—4 and 5—5, respectively, in Fig. 1.

With reference to the drawing, the step unit of this invention, indicated generally at 10, is illustrated in Fig. 1 as including a flat plate member 11 provided at opposite ends with a pair of upwardly and rearwardly extended arm members 12. The unit 10 is preferably stamped from sheet metal and is formed in two sections, indicated at 13 and 14, with each section including an arm member 12. The section 13 includes a portion 16 of the plate member 11 and the section 14 includes a portion 17 of the plate member 11.

Each of the plate portions 16 and 17 is formed in two pieces for conserving material, with the two pieces being spot welded together, as indicated at 18 (Fig. 5), adjacent the juncture 19 of a plate portion 16 or 17 with the corresponding arm 12. Each plate portion 16 and 17 is also provided with a pair of upwardly bent longitudinally extended stiffener ribs 20. As best appears in Fig. 4, the portion 16 has straight downwardly projected transverse flanges 21 slidably received in corresponding J-shape flanges 22 on the plate portion 17 to provide for a telescoping connection of the step sections 13 and 14.

Each of the arms 12 terminates at its upper end in a laterally extended reversely bent hook portion 23, with the hook portions 23 being extended outwardly of the unit 10 on opposite sides of the plate member 11. At its lower end, each of the arms 12 is of a shape to provide an arcuate seat indicated at 24. Each of the arms 12 may, if desired, also be provided with an outwardly bent stiffener rib 26.

An arcuate strap member 27 is formed integral with and extended downwardly and rearwardly from each of

2

the plate portions 16 and 17 adjacent the junctures 19 with the arms 12 for a purpose to appear later.

In use the step unit 10 is mounted on a rung 31 of a conventional rung type ladder indicated generally at 32 in Fig. 2, having side rails 33, only one of which is shown. The unit 10 is mounted on the ladder 32 so that the rung 31 is received between the seats 24 and the retaining straps 27 with the hooks 23 engaging the back sides 34 of the side rails 33. In other words, each seat 24 cooperates with its corresponding strap 27 to form a socket for receiving a rung 31 to support the unit 10 on the rung 31.

In this position of the unit 10, it is self supported on the ladder 32 by virtue of the cooperative action of the seats 24, retaining plates 27 and hooks 23. When a ladder user stands on the plate member 11, the rung 31 acts as a fulcrum, with the user standing on the plate 11 on one side of the fulcrum and with the hooks 23 engaging the side rails 33 on the opposite side of the fulcrum. The ladder user is thus safely supported and is provided with a flat foot supporting surface, namely, the plate member 11, to facilitate prolonged support on the rung 31. The hooks 23 are initially formed in a predetermined inclined relation with the plate 11 such that at a usual inclination of the ladder 32, the plate 11 is horizontally disposed. In those unusual cases in which the inclination of the ladder 32 is increased or decreased, the plate 11 is tipped slightly relative to a horizontal plane but such slight tipping does not affect the function of the unit 10 to provide a flat solid foot support.

The unit 10, by virtue of its formation in two substantially identical sections 13 and 14 is readily stamped economically from sheet metal. Further, by virtue of its simplified construction, the step unit 10 is readily applied to and removed from the ladder 32.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited, since changes can be made therein which are within the scope of the invention as defined by the appended claim.

What is claimed is:

A step unit for a ladder having side rails and spaced rungs extended between said rails, said step unit comprising a pair of spaced upright arm members each of which is provided at the upper end thereof with a laterally extended hook portion engageable with the back side of a rail, a substantially horizontal plate member consisting of a pair of telescoping portions connected to and extended between the lower ends of said arm members, said arm members being formed with seat portions adjacent the lower ends thereof adapted to seat on the top side of a rung adjacent opposite ends thereof, and arcuate retaining straps formed on said plate member at positions below said seat portions and adjacent the rear edge of said plate member and adapted to be positioned below a rung for retaining said seat portions in positions seated thereon with said plate member extending forwardly from said rung.

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