Oct. 21, 1930. R. C. PFEIL 1,779,370

LADDER RUNG

Filed June 18, 1928

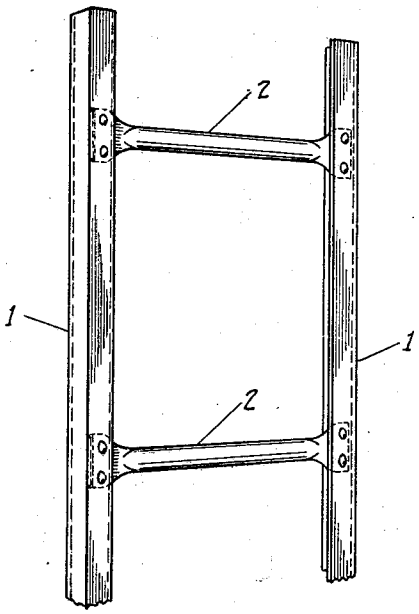


Fig. 1

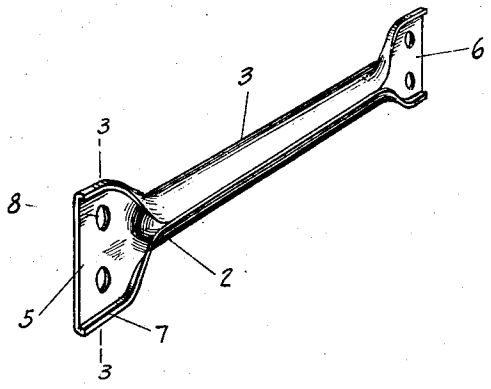


Fig. 2

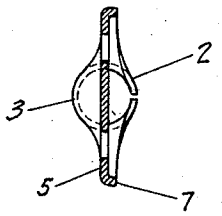


Fig. 3

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UNITED STATES PATENT OFFICE

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LADDER RUNG

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My invention relates to ladder rungs. More particularly, my invention relates to those parts of a ladder which provide both hand holds and steps at different times as a climber progresses from one end of a ladder to the other.

Heretofore, in most ladders the rungs have usually been fabricated from lengths of hollow tubing angle section or from a plurality of lengths cut from a round rod. The most common method of attaching these rungs to the side rails of a ladder has been either by welding the ends of the rungs to the side rails, pressing the ends of such rungs through the side rails or by riveting or bolting but the size of the material has been such as to provide sufficient space for only one rivet or bolt to each end. These various means of attaching the rungs to the side rails of a ladder have not been particularly conducive of a feeling of security on the part of the climber due to the fact that there is an inherent danger of the rungs working loose at their points of attachment.

My invention contemplates the provision of a ladder rung which is so constructed as to give a maximum strength in proportion to the amount of material used and, at the same time, provide sufficient space on the ends thereof for attachment of each end of the rung to each side rail of the ladder by two or more visible attaching means. My invention also contemplates the provision of a ladder rung which is unusually strong, while being very light, rigid and easy to fabricate. Further, my invention contemplates so constructing the rungs as to provide a rounded surface of such diameter as will permit easy gripping by the hands of the climber and, at the same time, provide a surface affording good support for the foot of the climber.

The details of my invention may be seen in the following description and the preferred form thereof may be seen in the accompanying drawings wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is a perspective view showing a plurality of rungs constructed in accordance with my invention in assembled relation with the side rails of a ladder.

Figure 2 is a perspective view of a ladder rung constructed in accordance with the idea disclosed by my invention.

Figure 3 is an end view, partly in section, of the ladder rung shown in Figures 1 and 2.

Referring to the drawings, I have shown a ladder of the well-known type consisting of side rails 1 and a plurality of rungs 2 and it will be understood that the side rails 1 may be of any preferred form.

In Figures 2 and 3 of the drawings, I have shown more detailed views of one of the ladder rungs 2. As shown, this ladder rung comprises a central portion 3 that is substantially circular in transverse cross-section and embodies flaring end portions 5 and 6, all of these parts being preferably formed from a single piece of metal. It will be seen that the opposite edges of the flared ends 5 and 6 are bent or flanged as at 7 and these flanges extend rearwardly from the ends of the ladder rung to the opposing ends of the central portion 3 of the rung. In fact, the flanges or bent portions 7 are continuations of the opposing edges of the central portion 3. Referring to Figure 3 of the drawings, it will be seen that the outermost ends of the flared portions 5 and 6 are in a line substantially through the center of the central portion 3. The rungs are constructed in this manner in order to avoid undue stress on any particular part of the metal when the rung is formed. Bolt or rivet holes 8 are provided in each flared end.

One of the advantages of my invention resides in the fact that the ladder rungs 2 may be formed or fabricated from a flat, rectangular piece of stock that has been previously sheared to the proper size by placing this stock in a forming die and then shaping it in the well-known manner.

Another advantageous feature of my invention results from the fact that the rungs are so constructed as to be conducive of a sense of security on the part of the climber, while, at the same time, providing a ladder rung which will furnish a good grip for the climber's hands and a rigid support for his weight. These advantageous features are

due partly to the fact that the rung is formed or fabricated from a single piece of material but are due mainly to the fact that the body portion of the ladder rung is substantially circular in transverse cross-section and the opposing ends of each rung are flatted outwardly to present a maximum flat surface at the points of attachment of the rungs to the side rails of the ladder. These flat surfaces are of such size as to permit the attachment of the opposite ends of each rung to the respective side rails by more than one rivet, bolt or other visible attaching means.

Still another advantageous feature of my invention results from the fact that I have provided a ladder rung which is exceptionally strong and durable, due to its construction, while being both very light and rigid. This is also due to the fact that the body portion of the rung is substantially circular in transverse cross-section but it will be understood that the same result may be attained irrespective of whether or not the idea of having the central portion substantially circular in transverse cross-section is rigidly adhered to. Such advantageous feature further results from the fact that the ends of each rung are so constructed as to present a relatively large surface at the points of attachment to the respective side rails of the ladder.

Since ladders of any type are ordinarily used in places exposed to the elements, it is desirable to protect the metal rungs from any corrosive action by coating the rungs, both inside and out, with a protective substance, for instance, by galvanizing. A still further advantageous feature of my invention results from the fact that the construction of the rung is such as to permit economical application of this protective coating to both sides of the rungs while, at the same time, it is such as to eliminate the necessity of the use of welding or pressing to attach the rung to the side rails of the ladder.

Having thus described my invention, what I claim is:

A ladder rung comprising a flat blank bent to form a hollow body portion which is substantially circular in cross section substantially throughout its length, and flat ends flanged at their upper and lower edges merging into said body portion, said flat ends being adapted to act as a securing means to the side rails of a ladder.

In testimony whereof, I hereby affix my signature.

ROY C. PFEIL.