METHOD OF MAKING BRAKE HANGERS

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My invention pertains to closed-link brake hangers for suspending brake beams in the trucks of railway cars and the like, and to an improved method of producing the same.

Closed-link brake hangers in which the yoke members are formed with a relatively large bearing surface at the side where the greatest wear is encountered and a relatively small bearing surface at the side where the wear is relatively small, have now been in successful use for some years. The yokes of such brake hangers, however, have been of such a shape, employing relatively deep longitudinal grooves, channels and the like, as not to permit of material stretching and bending without the danger of such deformation as would destroy the value of the final product. When therefore such closed-link brake hangers have been produced by methods which involve stretching and bending of the metal constituting the yoke, it has been found desirable to form the yoke portions thereof to the final shape by an ultimate forging operation. An example of this is to be found in Patent No. 1,716,933 granted to William A. Kern and myself, June 11, 1929. The yokes in the brake hanger of this patent are longitudinally grooved so as to provide a relatively large upper bearing surface and a relatively small lower bearing surface, and it was found desirable to produce this shape of the yoke members by an ultimate forging operation, and a subsequent cutting away, of course, of the "flash".

It is an object of my present invention to provide a method of producing closed-link brake hangers in which the yoke members have relatively large bearing surfaces on one side and relatively small bearing surfaces on the opposite side which will be simpler and more economical to carry out than previous methods, in that the ultimate forging operation and final cutting away of "flash" are omitted, and further to provide an improved closed-link brake hanger of the character in question which is easier to manufacture than those heretofore produced.

I have shown a closed-link brake hanger constructed in accordance with my invention, together with several stages in the production of the same, in the accompanying drawings in which Fig. 1 is a front view of a blank of non-rectangular parallelogram shape, formed by forging; Fig. 2 is a section on the line II—II of Fig. 1; Fig. 3 shows, in full lines, the blank of Fig. 1 after the "flash" has been cut away, expanding tools being shown as engaged within the blank preparatory to expanding the same into rectangular form, and, in dotted lines, the blank after having been thus expanded; Fig. 4 shows the completed brake hanger; and Fig. 5 is a section on the line V—V of Fig. 4.

In carrying my improved method into effect, a bar or like having the requisite volume is forged preferably by a steam hammer, into the blank of non-rectangular parallelogram form shown in Fig. 1. Such blank comprises longitudinal members 10 and transverse members 11 which ultimately constitute the legs and yokes respectively of the hanger. It is not required that the legs of the hanger have as great a cross sectional area as the yokes, and this method of producing the hanger meets this condition, since the difference in section of the members 10 and 11 may obviously be anything that is found desirable. The members 11, as originally formed in the blank, are of pear shape in cross section, and the blank is further formed, at each outside corner, with a shoulder 13, the purpose of which shoulders will appear. The blank, as produced by the forging operation, has extending therefrom, as well as disposed inside the same, a quantity of "flash" 13.

The second operation is to remove the "flash" 13, by a suitable trimming tool, which reduces the blank to the shape shown in full lines in Fig. 3. The blank is then reheated and placed upon expanding tools 14 and 14a, one of which is forcibly moved in the direction of the arrows [Fig. 3] whereby the blank is expanded from its non-rectangular parallelogram form into the rectangular form (shown in dotted lines), the transverse members 11 being usually somewhat stretched in the process. If desired, the blank may be stretched lengthwise, by lengthwise operating tools, to give the desired length. The result is the brake hanger shown in Fig. 4, in which it will be noted that the shoulders 12 provide strengthening means at each corner of the blank, giving additional strength at those parts of the blank where the structure of the metal may have been disturbed by the expanding operation with its incidental bending of the corner portions. In the finished blank the yoke members 11 remain of the same shape as resulted from the original forging operation, having relatively large bearing surfaces 16, relatively small bearing surfaces 18 opposite to the surfaces 16, and substantially flat converging sides 17 which connect the bearing surfaces 16 and 18.

It will be noted that the completed hanger is produced by but three operations, or four if the blank is stretched in both directions. This results from the fact that by the shape of the trans-
verse members 11 of the blank, permitting bending and stretching without danger of distortion, it has been made possible to omit the ultimate operations of forging and removing flash which have heretofore been found desirable. Thus an important economy of manufacture has been effected. Moreover the hanger itself has material advantages, above that of the easiness of its production. Among these is that its yokes retain a relatively large cross section throughout the wear of the hanger, so that sufficient strength remains even after the brake beam engaging portions have become considerably worn away.

I claim:

1. The method of producing closed-link brake hangers of the character in which the yokes have relatively large bearing surfaces at the insides thereof and relatively small bearing surfaces at the outsides thereof without a final forging operation for shaping said yokes, which consists of the steps of forming a metallic body to produce a blank of non-rectangular parallelogram form having two opposite sides thereof constituted by members each having a relatively large arcuate bearing surface towards the outside of the parallelogram, said surfaces being joined by substantially flat converging sides, said blank having outwardly swelled shoulders at the corners thereof for providing reinforcement against weakness due to bending of the metal in the subsequent expanding operation, and expanding said blank to rectangular form with said members and said shoulders in their final shape.

2. The method of producing closed-link brake hangers of the character in which the yokes have relatively large bearing surfaces at the insides thereof and relatively small bearing surfaces at the outsides thereof without a final forging operation for shaping said yokes, which consists of the steps of forging a metallic body to produce a blank of non-rectangular parallelogram form having two opposite sides thereof constituted by members each having a relatively large arcuate bearing surface towards the outside of the parallelogram, said surfaces being joined by substantially flat converging sides, said blank having outwardly swelled shoulders at the corners thereof for providing reinforcement against weakness due to bending of the metal in the subsequent expanding operation, and expanding and stretching said blank to rectangular form of the desired length with said members and said shoulders in their final shape.

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