June 3, 1930. W. LOUDEN 1,761,137

METALLIC ANGLE BAR

Filed May 20, 1927

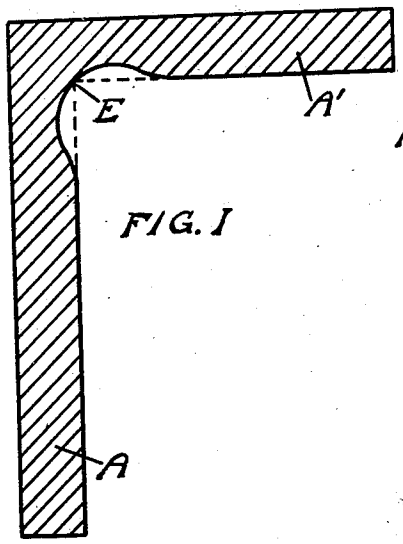


FIG. 1

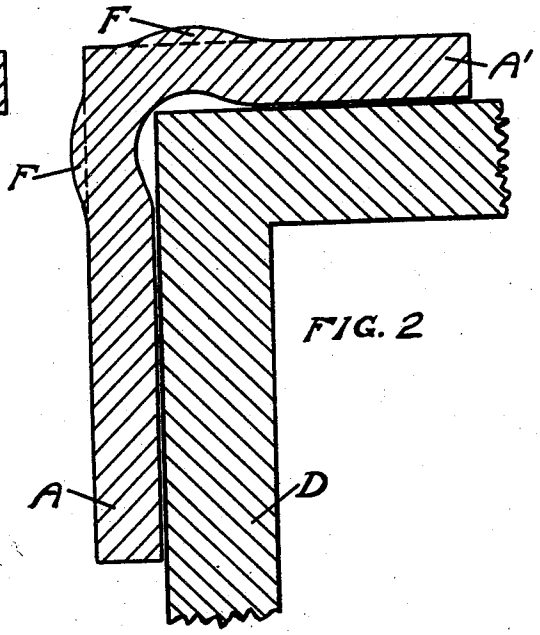


FIG. 2

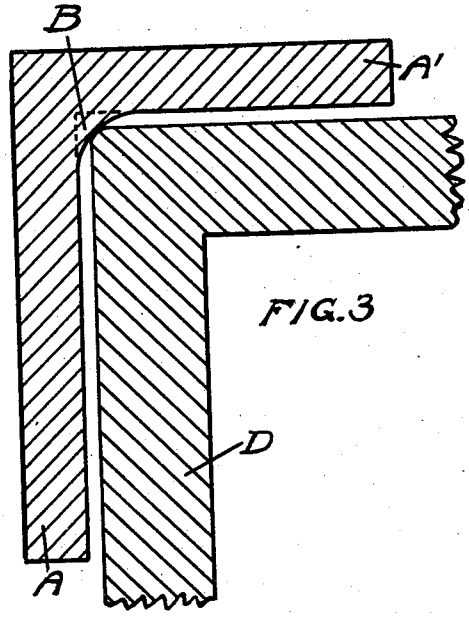


FIG. 3

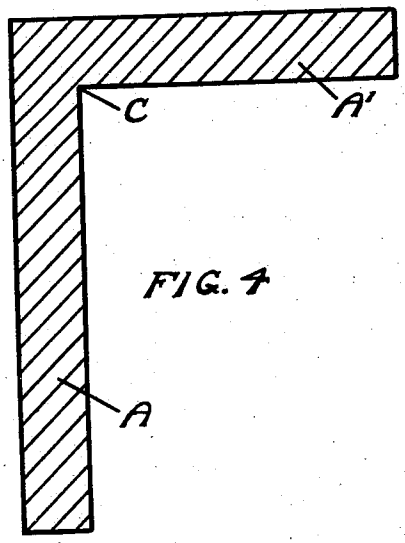


FIG. 4

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UNITED STATES PATENT OFFICE

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METALLIC ANGLE BAR

Application filed May 20, 1927. Serial No. 192,975.

My invention relates to an improvement in the form of the inner corner of metal angle bars, having flanges set at approximately right angles to each other, whereby the bar will have a rounded recess in its inner corner instead of either the common rounded fillet or the so-called square root inner corner, in which two way angle bars have been heretofore made, the advantage of this rounded recess construction will be hereafter set forth.

In the accompanying drawings forming a part of this specification, Fig. 1 is a transverse section of a metallic angle bar embodying my invention. Fig. 2 is the same showing the bar with a little modification connected to a member which may be used for supporting it, or for other purposes. Fig. 3 is a transverse section of an angle bar having the rounded fillet in its inner corner and also showing it connected to a member similar to that shown in Fig. 2, for supporting, or other purposes. Fig. 4 is a transverse section of an angle bar having the so-called square root inner corner.

Referring to the drawings A and A′ represent the flanges on all the angle bars which may be made the same width, or the flanges A may be made a little wider than the flanges A′, as shown in the drawings. The only essential difference between all the bars is that my improved bar shown in Fig. 1 has the rounded recess E while the bar in Fig. 3 has the rounded fillet B, and the bar in Fig. 4 has the so-called square root inner corner. The angle bar in Fig. 2 in addition to having my rounded recess in its inner corner (which is not lettered) has two enlarged portions F—F on its outer sides opposite the inner recess, the purpose of which will be explained later on.

Heretofore, angle bars have been generally made with the rounded fillets B of Fig. 3, because it is less trouble to make them that way than with the square root corner C of Fig. 4. To form the square root corner C requires the maintenance of a sharp angular edge on the inner roll in forming the bar with the square root corner, and this is continually wearing down so as to form more or less of a rounded fillet B. Therefore, to retain the square root corner, the inner roll has to be frequently redressed which adds to the expense and causes the roll to wear out sooner than if it was formed to make the rounded fillet. For a number of purposes the bar with the rounded fillet is as good as the bar with the square root inner corner, and sometimes better.

There is, however, one use in which it is not as good, and that is when the inner side of the angle bar has to be connected to a member having a rectangular corner, such as there is on the members D. In such cases, the angle bar having the rounded fillet B cannot be closely connected with such a member. The purpose of my invention is to produce an angle bar which can be closely connected with a member having a sharp rectangular corner, and also be as easily and cheaply rolled as if it had a rounded fillet.

I accomplish this by having formed on the inner roll to form the angle bar, an outwardly extended rounded portion which in operation will form the rounded recess E shown in Fig. 1. With a roll of this form, the rounded recess can be as easily and as cheaply formed as the rounded fillet B, and as shown in Fig. 2 an angle bar having this rounded recess in its inner corner, can be as closely connected to a member having a rectangular corner as if it had a square root corner C which is much more difficult and expensive to roll.

When the flanges of the angle bars are the same thickness throughout, this rounded recess will make them thinner opposite the recess. If this would weaken the bar it can be easily remedied by forming the outer roll to add portions F—F to the flanges opposite the recess. Also, the flanges of the bar can be made thicker on their inner portions opposite the recess than on their outer edges, which is a common thing to do in the manufacture of angle bars. If there should be any liability of weakness opposite the groove E, it can be easily overcome in either of these ways. When the enlarged portions F—F are added, they should be opposite the recess in the inner corner to restore the even thickness of the flanges.

In Patent No. 1,699,333 is illustrated a use which has been made of my improved angle bar. The angle bars C are used to form the top rail, or rails, of an animal stall, and are connected to the stall posts A as most plainly shown in Fig. 5 of said patent. This patent is referred to for the purpose of getting a more complete understanding of the uses which may be made of my improved angle bar.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. As an article of manufacture, an angle bar formed by rolling heated metal and having flanges at substantially right angle to each other, a rounded recess in its inner corner, said recess being extended into each of the adjacent portions of the flanges, substantially as shown and described.

2. As an article of manufacture, an angle bar formed by rolling heated metal and having flanges at substantially right angle to each other, a rounded recess in its inner corner, said recess being extended into each of the adjacent portions of the flanges, and extended portions on the outer sides of the flanges opposite said recess, substantially as shown and for the purpose described.

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