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GRATING

William F. Zabriskie, Detroit, Mich., assignor to
Gabriel Steel Company, Detroit, Mich., a cor-
poration of Michigan

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The invention relates to gratings of that type used in covering areaways and for similar purposes and it is the object of the invention to obtain a construction which can be easily manufactured at relatively small expense and which forms an efficient construction. To this end, the invention consists in the novel construction as hereinafter set forth.

In the drawing:

10 Fig. 1 is a perspective view of the grating;

Fig. 2 is a side elevation of the longitudinally extending grating bars;

Fig. 3 is a similar view of the transverse bars;

Fig. 4 is a horizontal section on line 4—4 of

15 Fig. 1 illustrating the manner of taking up the horizontal clearance to impart greater rigidity to the structure;

Fig. 5 is a vertical section illustrating the manner of locking the longitudinal and transverse bars to each other and also the manner of taking up vertical clearance;

Fig. 6 is a section at right angles to Fig. 5;

Fig. 7 is a view similar to Fig. 6 showing a modified construction.

25 My improved construction of grating comprises longitudinally extending bars A, each of which is formed with a series of punched apertures B which extend from a point below the upper edge of the bar to substantially the neutral axis thereof. C are transversely extending bars which are of a cross-section corresponding to the apertures B so as to permit of threading these bars there-through. Each of the bars C is provided with a series of notches D for receiving the portion E of the bars A which is above the aperture B. Thus in assembling the grating, the bars C are first threaded through the corresponding apertures of the bars A and are then raised to interlock the portions E with the notches D.

40 To hold the bars in the relation just described, it is necessary to fill the portion of the aperture B, which is opened by the raising of the bars C. This may be accomplished in a number of ways. As shown in Figure 7, this aperture is closed by filling it with welded metal indicated at F. In the construction shown in Figures 1, 4 to 6, inclusive, the apertures are filled by a locking bar G which is of a cross-section corresponding to said apertures and which extends the full length of the bars C. The ends of the bars C and G are secured to the side bars A of the grating preferably by welding as indicated at H.

50 The grating construction as last described will have a high degree of strength inasmuch as the portion of each of the bars A, which is in ten-

5 sion, extends uninterruptedly from end to end. Also the upper edge portion of each bar A including the portions E extends uninterruptedly from end to end and is in compression. The portion of the bar which includes the apertures B is also in compression and if these apertures are completely filled by the bars C, such portion will be efficient as a compression member. However, to permit of freely inserting the bars C through the apertures B, a certain amount of clearance is necessary so that the cross-section of the bars C will not completely fill the apertures. This would permit of a greater deflection of the same under load which is undesirable. I have therefore devised a method of taking up this clearance so that the cross-section of the bars C will completely fill the apertures B as follows:

10 After the bars A, C, and G have been assembled as previously described, the metal on one or both sides of each aperture B is swedged to take up the clearance. This swedging operation may be performed on the cold metal by a suitable pinching tool indicated by dotted lines at I, Fig. 4. The jaws of this tool are so fashioned as to engage opposite sides of the bar A adjacent to the bar C and by a swedging operation will flow the metal from the position indicated in dotted lines, Fig. 4, to the form indicated at J. A similar operation is performed adjacent to the under side of the bar G, as indicated at K, resulting in taking up the clearance between this bar and the bottom of the aperture B. These swedging operations may be rapidly performed by the workman who passes successively from joint to joint until all clearance is taken up. The result of this treatment is to impart to the grating a higher degree of rigidity, as substantially the whole of the compression portion of each bar A will receive the initial load.

40 What I claim as my invention is:

1. A grating comprising a series of longitudinally extending spaced bars, each provided with a series of apertures through the compression portion thereof with surrounding metal on all sides, a series of tie bars threaded through said apertures with an initial slight clearance therein, the metal of said longitudinal bars adjacent to a side of each aperture being swedged to take up said clearance.

50 2. A grating comprising a series of longitudinally extending spaced bars, each provided with a series of apertures through the compression portion thereof, leaving an uninterrupted compression portion above said apertures, a series of tie bars of a cross section corresponding to said

apertures with a slight clearance, each tie bar being provided with a series of notches in its upper face corresponding in area to the cross section of the uninterrupted portion of said longitudinal bars and permitting the raising of said tie bars with their upper faces flush with the upper faces of said longitudinal bars and a filler for the vertical space in each aperture opened by the raising of said tie bars, the metal of said longitudinal bar adjacent to a side of each aperture being swedged to take up clearance.

3. A grating comprising a series of longitudinally extending spaced bars, each provided with a series of apertures through the compression portion thereof, leaving an uninterrupted compression portion above said apertures, a series of tie bars of a cross section corresponding to said apertures with a slight clearance, each tie bar being provided with a series of notches in its upper face corresponding in area to the cross section of the uninterrupted portion of said longitudinal bars and permitting the raising of said tie bars with their upper faces flush with the upper faces of said longitudinal bars, and a key bar extending parallel to and beneath each of said tie bars, being of a depth corresponding to the depth of said notches, said longitudinal bars

being swedged adjacent to sides of each aperture to close in the same and to take up the clearance between said longitudinal bars and said tie bars and key bars.

4. A grating comprising a series of longitudinally extending spaced bars, each provided with a series of apertures through the compression portion thereof, leaving an uninterrupted compression portion above said apertures, a series of tie bars of a cross section corresponding to said apertures with a slight clearance, each tie bar being provided with a series of notches in its upper face corresponding in area to the cross section of the uninterrupted portion of said longitudinal bars and permitting the raising of said tie bars with their upper faces flush with the upper faces of said longitudinal bars, and a key bar extending parallel to and beneath each of said tie bars, being of a depth corresponding to the depth of said notches, said longitudinal bars being swedged adjacent one side of each aperture to take up the clearance between the same and said tie bar and being also swedged adjacent the bottom of said aperture to take up the clearance between the same and said key bar.

WILLIAM F. ZABRISKIE.