May 30, 1950 A. W. ERNESTUS 2,509,732

GRATING CONSTRUCTION

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Fig. 1

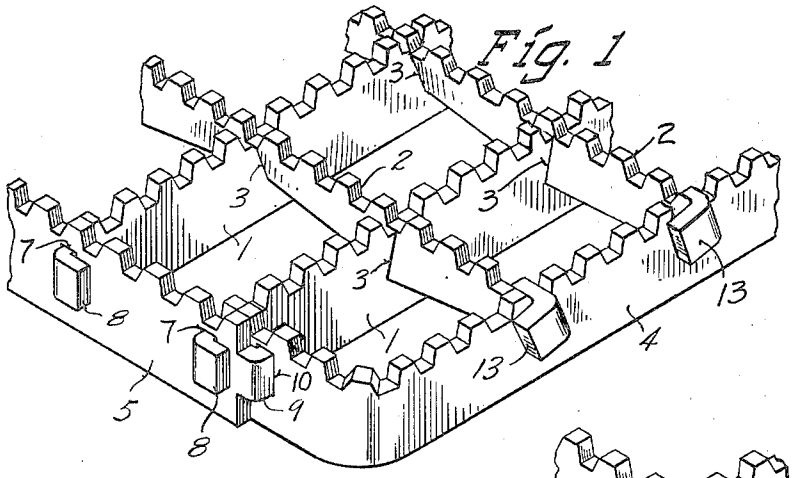


Fig. 2

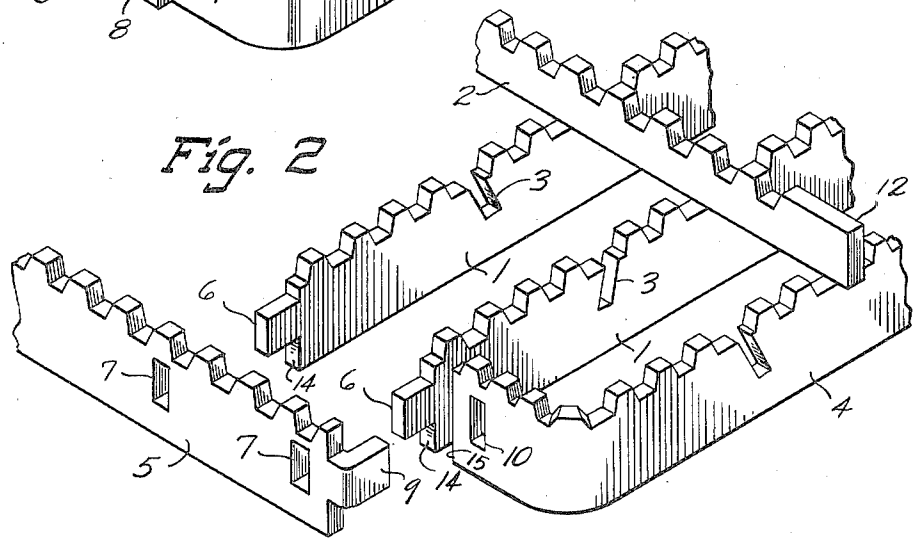
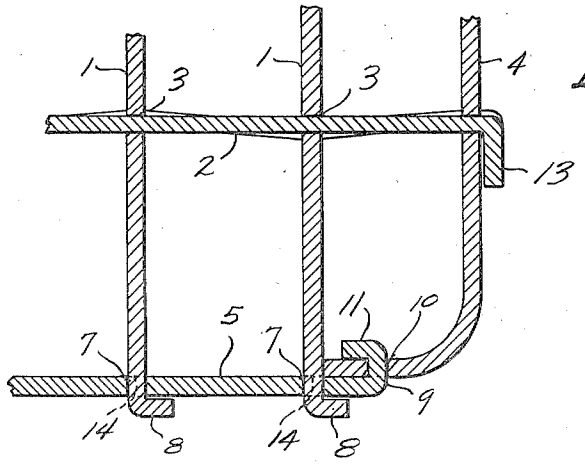


Fig. 3



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GRATING CONSTRUCTION

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4 Claims. (Cl. 189—82)

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This invention relates to gratings employed as footways, treads or the like and more particularly to the corner construction thereof.

While the corners of gratings formed of cross-members at right angles to each other are subjected to the same or greater stresses in use as any other part of the grating, the corners are unavoidably subject to inherent weakness in that each corner is supported by the rest of the structure from only two directions and for this reason are specially given to loosening or eventual failure.

One object of the invention is to provide an improved, stronger and more durable corner structure which is inexpensive to manufacture, easy to assemble, and light in weight.

Another object is to provide a corner construction for gratings without welds to decrease costs.

Another object is to provide a corner structure which is self-locking and will not become loose with use.

Other objects of the invention will appear hereinafter in connection with the following description of an embodiment of the invention illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of a corner section of the grating;

Fig. 2 is a perspective view of the ends of the longitudinal and end bars prior to assembly; and

Fig. 3 is a top sectional view of the corner structure.

The grating to which the invention is particularly adapted as shown in part in the drawing is formed of a plurality of grating bars disposed in a cross-like pattern and comprising a plurality of spaced parallel longitudinal bars 1 and cross-bars 2 arranged so that the upper edges of the bars are disposed in the same horizontal plane and together present a flat supporting surface.

The bars 1 and 2 are secured together by any suitable means. The longitudinal bars 1 are parallel and extend the length of the grating and the cross-bars 2 are parallel and extend the width of the grating. The cross-bars 2 shown in Fig. 1 are of substantially less height than longitudinal bars 1. Slots 3 in the upper side of the longitudinal bars 1 receive and secure the cross-bars 2. The cross-bars 2 may be correspondingly fitted with slots if desired.

The slots 3 in alternate bars 1 for any given cross-bar 2 may be inclined in opposite directions to provide a twist in the cross-bars which locks the bars together.

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The side bars 4 of the grating are parallel to longitudinal bars 1 and are slotted similar to bars 1 for receiving the cross-bars 2. Only one bar 4 is shown in the drawings for the purposes of illustration. At the corner of the grating bar 4 is curved toward the adjacent longitudinal bar 1 and the end portion of bar 4 lies parallel to and inside the end bar 5.

The end bars 5 of which only one is shown in the drawings are parallel to cross-bars 2 and have a depth and thickness corresponding to bars 1 and 4.

The longitudinal bars 1 have longitudinally extending tongues 6 at each end which project through corresponding slots 7 in end bars 5. Tongues 6 after insertion in slot 7 are bent over at 90° against the end bars 5, forming tabs 8. The end bar 5 has an inwardly turned tongue 9 at each end which extends through a corresponding slot 10 in the end portion of side bar 4 lying parallel to end bar 5. Tongue 9 of bar 5 after insertion in slot 10 is bent over at 90° against the inside of the end portion of side bar 4, forming tab 11.

The cross-bars 2 are longer than the width of the grating and extend through slots in the side bars 4, the ends 12 of the cross-bars being bent over at 90° against the side bars 4 forming tabs 13 which securely hold the side bars in place.

The grating is assembled by first placing the longitudinal bars 1 and side bars 4 in spaced relation and then securing the cross-bars 2 in place by pressing the same into the corresponding slots 3 in the longitudinal bars 1 and the slots of side bars 4. The ends 12 of the cross-bars 2 are then bent 90° to form tabs 13 as shown.

The end bars 5 are thereafter positioned so that the tongues 6 forming tabs 8 extend through the corresponding slots 7 in the bars 5 and the tongues 9 forming tabs 11 extend through the corresponding slots 10 in the end portions of bars 4. The tabs 8 are then bent 90° to lie against the outer side of the end bars 5 and tabs 11 are bent 90° against the inside of the end portion of side bars 4.

The end bars 5 lie against end shoulders 14 of bars 1 at the base of tongues 6 and end 15 of bar 4 rests against the adjacent longitudinal bar 1. The described construction braces the grating at the corners and holds the same securely together.

Tongues 6 and 9 fit tightly within their respective slots to provide a structure which will not come loose in service.

This construction of the grating provides a

strong structure which can be quickly assembled without welding and in which the bars are securely interlocked and braced against each other at the corners.

The invention may have various embodiments within the scope of the accompanying claims.

I claim:

1. A metal grating comprising spaced parallel grating bars extending in one direction and spaced parallel grating bars extending transversely of said first named bars with said grating bars being interlocked at their corresponding intersections with their upper edges lying in a common plane to provide a tread surface, end tongues on said first named grating bars passing through and extending in corresponding openings in the outermost of said transversely extending bars with the ends of the tongues being bent over at approximately 90° against said outermost transversely extending bar, and end tongues on the outermost of the transversely extending bars passing through and extending in a corresponding opening in the end portion of the outermost of the first named grating bars with the end portion of the latter being curved inwardly to abut against the next adjacent first named grating bar to support the same thereagainst and the end of the tongue on said outermost transversely extending bar being bent at approximately 90° against said outermost first named bar to secure the grating together at the corners.

2. A metal grating and the like comprising spaced parallel longitudinal bars and spaced parallel cross-bars interlocked at their corresponding intersections with their upper edges lying in a common plane to provide a tread surface, a pair of side bars disposed parallel to said longitudinal bars and constituting the outermost longitudinal bars of the grating, a pair of end bars disposed parallel to said cross-bars and constituting the outermost cross-bars of the grating, end tongues on said longitudinal bars passing through and fitting in corresponding openings in said end bars with the ends of the tongues bent over at approximately 90° against said end bars to secure the end bars against the ends of said longitudinal bars, and end tongues on said end bar with each tongue passing through and fitting in a corresponding opening in the end portion of said side bar with the end portion of the latter being curved inwardly to abut against the next adjacent longitudinal bar and the end tongue on said end bar being bent over at approximately 90° against said side bar to secure the grating together at the corners.

3. In a grating comprising spaced parallel longitudinal metal bars and spaced parallel transverse metal bars, an interlocking corner construction comprising a slot in the outer transverse bar disposed to receive a tongue at the end of the second longitudinal bar with said tongue being bent after insertion to lie against the outer side of said outer transverse bar, a slotted inwardly turned flange at the end of the outer longitudinal bar, the end of said flange abutting the side of the second longitudinal bar and the outer side of said flange engaging the inner face of the outer transverse bar, and a tongue on said outer transverse bar disposed to enter the slot in said flange with said tongue being bent after insertion to lie against the inner face of said flange.

4. In a metal grating providing a common tread surface by spaced parallel longitudinal bars interlocked with spaced parallel cross-bars and bounded by side bars parallel to the longitudinal bars and end bars parallel to said cross-bars, a corner construction for said grating comprising a slot in said end bar disposed to receive a tongue on the outermost longitudinal bar with the tongue being bent against said end bar after passing through the same to lock said bars together, a tongue on the end of said end bar, an inwardly curved end provided on said side bar and having a slot therein to receive said tongue and the end of the side bar abutting against the next adjacent longitudinal bar to support the same, and the end of said tongue on the end bar being bent against the inside of the curved end of said side bar after passing through the slot therein to lock the end and side bar together.

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