

N. BERSON.
GRATING FOR STRUCTURAL PURPOSES.
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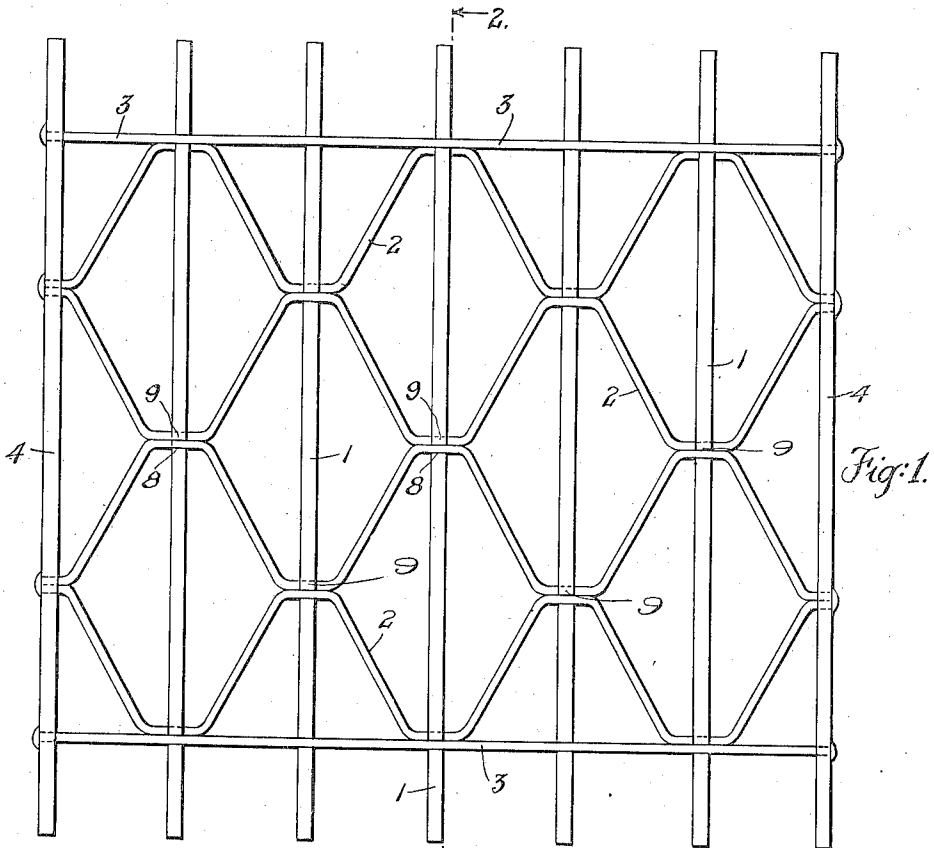


Fig. 1.

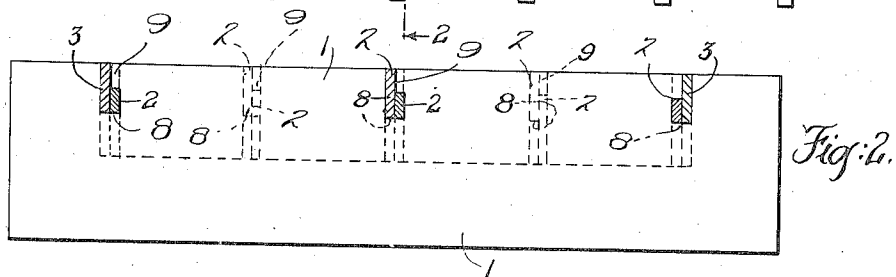


Fig. 2.

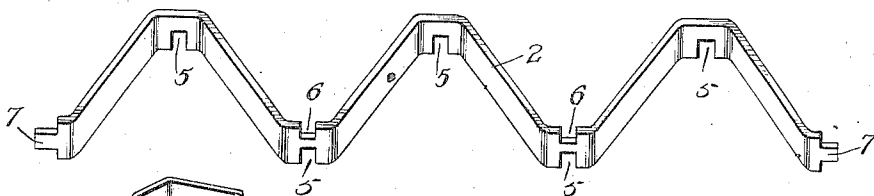


Fig. 3.

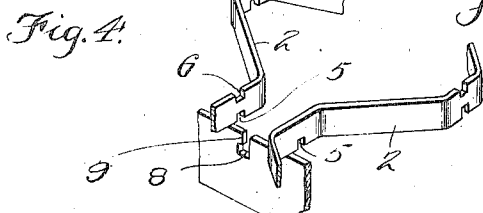


Fig. 4.

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GRATING FOR STRUCTURAL PURPOSES.

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To all whom it may concern:

Be it known that I, NATHAN BERSON, formerly a subject of the Czar of Russia, but having taken out first naturalization papers in the United States, residing at New York city, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Gratings for Structural Purposes, of which the following is a specification.

My invention relates to metal gratings used to cover openings in floors, sidewalks, ship decks and so forth, to form runways and for other structural purposes. The main object of my invention is to produce a grating of this character which can be assembled and held together without use of rivets or other fastening than the interlocking or keying action of the parts of the grating itself, and which shall at the same time be rigid and present great resistance to all strains tending to produce distortion. The best form of apparatus at present known to me embodying my invention is illustrated in the accompanying sheet of drawings in which—

Figure 1 is a plan view of a small grating showing all the features of the preferred form of my invention.

Fig. 2 is a vertical section on line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a detail perspective view of one of the reticulated or bent cross strips, and Fig. 4 is a perspective showing the parts detached.

Throughout the drawings like reference characters indicate like parts.

1, 1, represent a series of straight or substantially straight supporting bars which are arranged on edge to serve as girders supporting the weight placed upon the grating. 2, 2, represent a series of cross strips of less cross section than the bars 1, which are reticulated or bent into wave form so that when assembled with the crest of each bend of one strip abutting against the crest of the bent portion of an adjacent strip they will form a reticulated or woven or mesh-like effect, as shown in Fig. 1. At the end of each section of a grating there is a straight cross strip 3, of the same cross section as the strips 2, or approximately the same, which straight cross strips serve as

keys to lock the strips in their assembled position, as will be hereinafter explained and at the same time form border pieces or end pieces for that panel of the grating. Side bars 4, 4, are fastened to the outer ends of all the cross strips 2 and 3, in any convenient manner and complete the panel frame. The form of fastening may be projecting tongue 7, shown in Fig. 3, which pass through holes or slots in the side bars 4, 4, and have their outer ends upset or otherwise prevented from withdrawal.

In order to properly assemble the parts and produce a grating having a surface all in one plane, the longitudinal bars 1, 1, are notched at equidistant points, as indicated at 8, 8, to a uniform depth. Preferably these notches are under-cut so as to form an overhanging projection 9, 9, on one wall of the notch. The under-cut portion and overhanging projection should be on the same side of all notches 8. These notches are of such a depth that when the crest of the bent portion of each cross strip 2, is placed in its corresponding notch, the upper edges of the cross strips 2, and the longitudinal bars 1, will all come in the same plane. It is evident that every other crest of a bent portion of each cross strip 2, must have a notch 6, cut in its upper edge to accommodate the overhanging projection 9, on the notch in the bar 1. Preferably also each crest of a bent portion of each cross strip 2, has a notch 5, on its lower edge which will mesh with or grasp the bottom of the notches 8, in the bars 1. In assembling the parts, the bars 1, are placed parallel one to another and properly spaced, and a cross strip 2, is dropped into the corresponding notches 8, the crest of the bent portion provided with the upper notches 6, being slipped under the projection 9, on the under-cut wall of the notch 8, with which it engages. Then a second cross strip 2, is placed in position, the crests of the bent portions of this second strip not provided with upper notches 6, dropping into the notches 8, in which are already locked portions of the first cross strip which are provided with upper notches 6. Thus the second cross strip locks in position the first cross strip. In the same way a third strip will lock the second and so on throughout the panel. The panel is then completed by

dropping into position the key cross strips 3, 3, and fastening the side bars 4, 4, to the outer ends of all the cross strips.

Preferably the cross strips are made of a uniform depth which depth is considerably less than the depth of the girder-like longitudinal bars 1, 1, but this proportion of the parts may be departed from.

The main advantage of the invention lies in the diagonal bracing action of the portions of the cross strips 2, 2, which run diagonally of each panel of the grating. These strips being tied to the longitudinal bars 1, 1, by the notches 6, 6, engaging the projections 9, 9, any diagonal distortion of the panel is impossible without rupturing the material. If the under notches 5, 5, are also employed they further reinforce this diagonal bracing action. Other advantages are the lightness of the construction combined with rigidity, the absence of any necessity for the costly process of riveting or similar steps in fastening the parts of the grating together and the even distribution of the bearing surfaces of the cross strips and longitudinal bars over the surface of each panel of the grating.

Having described my invention, I claim:

1. A grating for sidewalks and floors having in combination a series of substantially straight supporting bars extending substantially parallel each to the other and notched at intervals on their upper edges, and a series of uniformly bent or reticulated cross strips notched on their under edges, the notched portions of the bars and strips being intermeshed and provided with means for positively fastening them together at each intersection, at which a notched portion of a bar engages the notched portion of two strips.

2. A grating such as is described in claim 1 which has the notches in the bars and strips of such depth that when they are completely in mesh, one set of edges of all the strips shall be in the same plane as are one set of edges of all the bars.

3. A grating such as is described in claim 1 combined with a straight cross strip at either end thereof fitting into the end notches in the bars to lock therein the single reticulated cross strip resting in said end notches.

4. A grating such as is described in claim 1 combined with straight cross strips at either end thereof fitting into the end notches

in the bars to lock therein the single reticulated cross strip resting in said end notches, and with straight side bars to which the extremities of all cross strips are fastened.

5. A grating for structural purposes which comprises the combination of a series of substantially straight bars extending parallel each to the others and notched in their upper edges at equidistant points, each set of notches in the alternate bars being in the same straight line but out of line with all the notches in the other bars, and all said notches being under-cut on one side, together with a series of uniformly bent or reticulated cross strips which are notched on their under edges at the crest of each bent portion and on their upper edges at the crest of each alternate bent portion, the aforesaid parts being assembled by placing the oppositely projecting bent portions of the cross strips together so that a portion with a single notch abuts against a portion with two notches while the notches in their under edges register one with another and mesh with a notch in one of the straight bars and the upper notch in one of the strips meshes with the overhanging projection of the under-cut side of the notch in the bar.

6. A grating for structural purposes which comprises the combination of a series of substantially straight bars extending parallel each to the others and notched in their upper edges at equidistant points, each set of notches in the alternate bars being in the same straight line extending at right angles to the bars but out of line with all the notches in the other bars, and all said notches being under-cut on one side, together with a series of uniformly bent or reticulated cross strips which are notched on their upper edges at the crest of each alternate bent portion, the aforesaid parts being assembled by placing the oppositely projecting bent portions of the cross strips together so that each portion with an upper notch abuts against a portion without any notch in its upper edge, said pair of abutting strip portions being inserted in a notch of a supporting bar, the upper notch in one of the strips meshing with the overhanging projection of the under-cut side of the notch in the bar.

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Witnesses:

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