Oct. 29, 1929. W. E. IRVING 1,733,966

CONTINUOUS GRATING STRUCTURE FOR FLOORING AND LIKE PURPOSES

Filed May 31, 1928

FIG. 1.

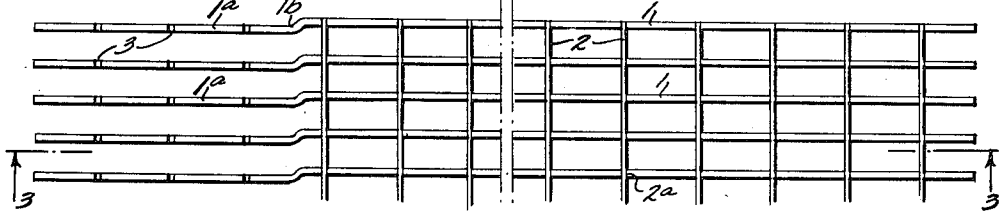


FIG. 2.

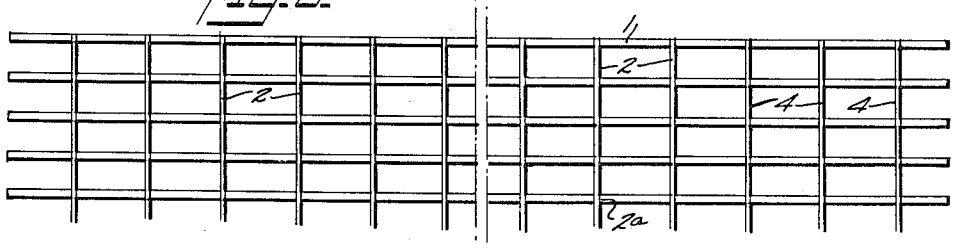


FIG. 3.

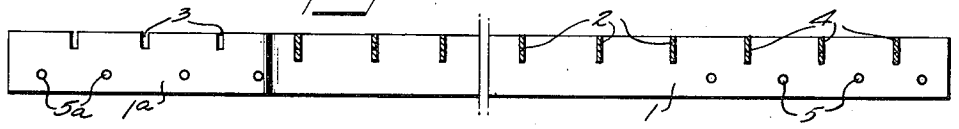


FIG. 4.

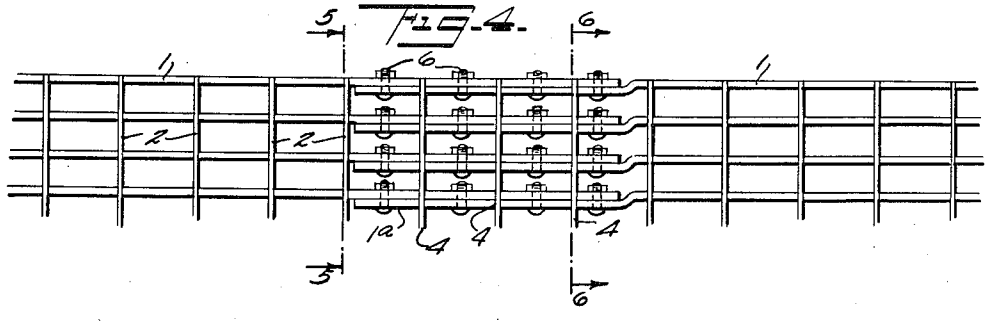


FIG. 5.

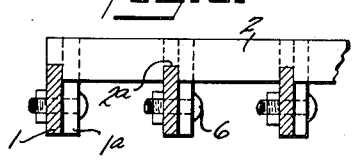
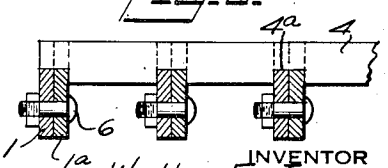


FIG. 6.



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UNITED STATES PATENT OFFICE

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CONTINUOUS GRATING STRUCTURE FOR FLOORING AND LIKE PURPOSES

Application filed May 31, 1928. Serial No. 281,690.

This invention relates to continuous ventilated floorings or continuous reenforcements for concrete floorings and similar structures of the so-called "egg crate" type. Said egg crate grating has heretofore been made in separate panels laid side by side or end to end, or both, and supported on cross beams or other parallel supports, the ends of the panels resting on said supports and each panel usually extending across the distance or span between two adjacent supports.

The object of the present invention is to provide a continuous structure of the egg crate type in which abutting panels can be securely fastened together end to end with a joint of substantially the same strength as that of the body of each panel, thereby forming a continuous structure which will extend over a series of transverse beams or supports having substantially uniform strength to resist the bending stresses of travelling loads whether said connecting joints happen to be located over said supports or at points intermediate between the same. To this end each unit panel of grating, which is made as heretofore of a series of parallel longitudinal bars notched in their upper edges and a series of cross strips notched in their under edges to interlock with the notches in the longitudinal bars, is provided, according to my invention, with extensions of the longitudinal bars at one end of each panel which are similarly notched in their upper edges to interlock with certain of the cross strips in the adjacent end of the next panel when any two panels are assembled to form a continuous grating, and are also provided with additional fastening means for securing together the overlapping portions of said longitudinal bars to complete a rigid joint.

The best form of apparatus at present known to me embodying my invention is illustrated in the accompanying sheet of drawings in which

Fig. 1 is a plan view of one standard panel, parts being broken away in the middle;

Fig. 2 is a similar view of a special panel for the end of the series of panels when joined together;

Fig. 3 is a longitudinal section on line 3—3 of Fig. 1;

Fig. 4 is a plan view of a portion of a continuous grating produced by joining and fastening together the adjacent ends of two panels such as shown in Fig. 1, parts being broken away.

Fig. 5 is a cross section on line 5—5 of Fig. 4, and

Fig. 6 is a cross section on line 6—6 of Fig. 4.

Throughout the drawings like reference characters indicate like parts.

1, 1, represent the main portions of the longitudinal or bearing bars of each grating unit or panel; 2, 2, represent certain of the cross strips connecting said main portions; 1^a, 1^a, represent extensions of the longitudinal bars at one end of each standard panel preferably offset laterally at 1^b a distance equal to the thickness of each said bar. 3, 3, represent a series of equally spaced apart notches of uniform dimensions in the upper edges of each of the longitudinal bars and extensions thereof, and 2^a represent notches in the under edges of the cross strips 2 of uniform dimensions and equally spaced apart to interlock with the notches 3, 3, in the longitudinal bars to form the well known egg crate type of grating.

Preferably the cross strips 2, 2, are of less depth than the longitudinal bars, as shown.

4, 4, represent similar cross strips except that the notches 4^a, 4^a, in their under edges are of double the width of the notches 2^a, 2^a, in the cross strips 2.

A certain number of these cross strips 4 are located at the end of each panel of grating opposite to that provided with the longitudinal bar extensions 1^a, 1^a.

In assembling the series of grating panels, so constructed to form a continuous grating, the offset extensions 1^a of the longitudinal bars at the end of one panel are caused to overlap the adjacent ends of the longitudinal bars of the next panel, as shown in Fig. 4, the wider notches 4^a, 4^a, in the under edges of the cross strips 4 then embracing and interlocking with the adjacent overlapping

portions of both sets of longitudinal bars to form a continuous structure.

To provide additional fastening means and a more rigid joint, the overlapping portions of the longitudinal bars may be provided with registering bolt holes 5, 5, in one end of bars 1, 1, and 5^a, 5^a, in the other, offset end portions 1^a, 1^a, through which registering holes or perforations bolts 6, 6, may be inserted and fastened with nuts in the usual way, thus forming a rigid continuous structure, as shown in Fig. 4.

Other well known fastening means could be substituted for bolts 6, 6.

As the left hand end of a strip of continuous grating formed by joining together a series of units such as shown in Fig. 1, by the joints illustrated in Fig. 4 would have a set of free projecting, offset ends 1^a, of longitudinal bars 1, 1, I provide, for each such series, a single unit such as shown in Fig. 2, which has no offset projecting ends of its longitudinal bars and which would form the last unit at one end of each series of abutting connected ends. Similarly the unit at the right hand end of each series would have only cross strips 2 with notches 2^a of single width therein.

Among the advantages of my invention may be mentioned the great strength of the continuous structure formed by it; the avoidance of the open spaces which now exist between the adjacent ends of separate panels of grating assembled to form a flooring in the usual way, whereby the wheels of passing vehicles find in my invention a continuous, even, smooth surface over which to roll; the possibility of making standard units of grating panels in the shop which may be assembled on the job and form a continuous flooring that can be supported by cross beams spaced any distance apart within the limits fixed by the ability of the grating used to support traveling loads of a given maximum between supports spaced apart that distance; and the avoidance of all additional fastening means separate from the panels themselves except the standard bolts and nuts to be used in the manner above described.

Another advantage of my invention arises from the resistance to longitudinal stresses either of extension or compression applied to the joint between the panels afforded by the interlocking cross pieces 4 engaging notches in the longitudinal bars of both panels. This feature is particularly important when these grating reenforcements are used in two layers to form the reenforcement for deep concrete slabs as shown in my Patent No. 1,526,069, dated February 10, 1925. It is obvious that the described interlocking means also does not interfere with the upper surfaces of all the connected panels being in exactly the same plane so that a perfectly smooth plane surface results for the entire composite structure of continuous grating or continuous reenforced concrete slab produced by the use of my invention.

Having described my invention, I claim:

1. A continuous grating for ventilated flooring and the like purposes which comprises, in combination, a plurality of panels each composed of a series of longitudinal, parallel bars having uniformly spaced apart notches in their upper edges and a series of cross strips notched in their lower edges to interlock with the notched portions of said longitudinal bars, all of said longitudinal bars at one end of each panel having projecting portions each also provided with a plurality of notches corresponding in dimensions and spacings to those in the main portion of said bars, whereby said projecting portions on each panel may engage certain of the cross strips in the adjacent ends of the next panel, when the panels are assembled to form a continuous grating, together with additional means for fastening together the overlapping portions of said two sets of longitudinal bars, the cross strips in the above recited combination which interlock with the overlapping portions of said longitudinal bars having their notches of a width sufficient to embrace and engage both said overlapping portions.

2. A combination such as defined in claim 1 in which said projecting portions are offset laterally by a reversed curve section from the main portions of the longitudinal bars a distance substantially equal to the thickness of said bars; whereby, when two panels are assembled to form a continuous grating the main portions of the longitudinal bars abutting one with another will all lie in the same straight line.

3. A continuous grating for ventilated flooring and the like purposes which comprises, in combination, a plurality of panels each composed of a series of longitudinal, parallel bars having uniformly spaced-apart notches in their upper edges and a series of cross strips notched in their lower edges to interlock with the notched portions of said longitudinal bars, all of said longitudinal bars at one end of each panel having projecting portions each also provided with a plurality of notches corresponding in dimensions and spacing to those in the main portion of said bars, whereby said projecting portions on each panel may engage certain of the cross strips in the adjacent ends of the next panel when the panels are assembled to form a continuous grating, the notched portions of such cross strips being of such width as to engage said projecting portions of the adjacent panel as well as the longitudinal bars of the first panel which overlap the same.

WALTER EDWARD IRVING.