Dec. 26, 1939. W. A. BATES 2,184,407

GRATING

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Fig. 1.

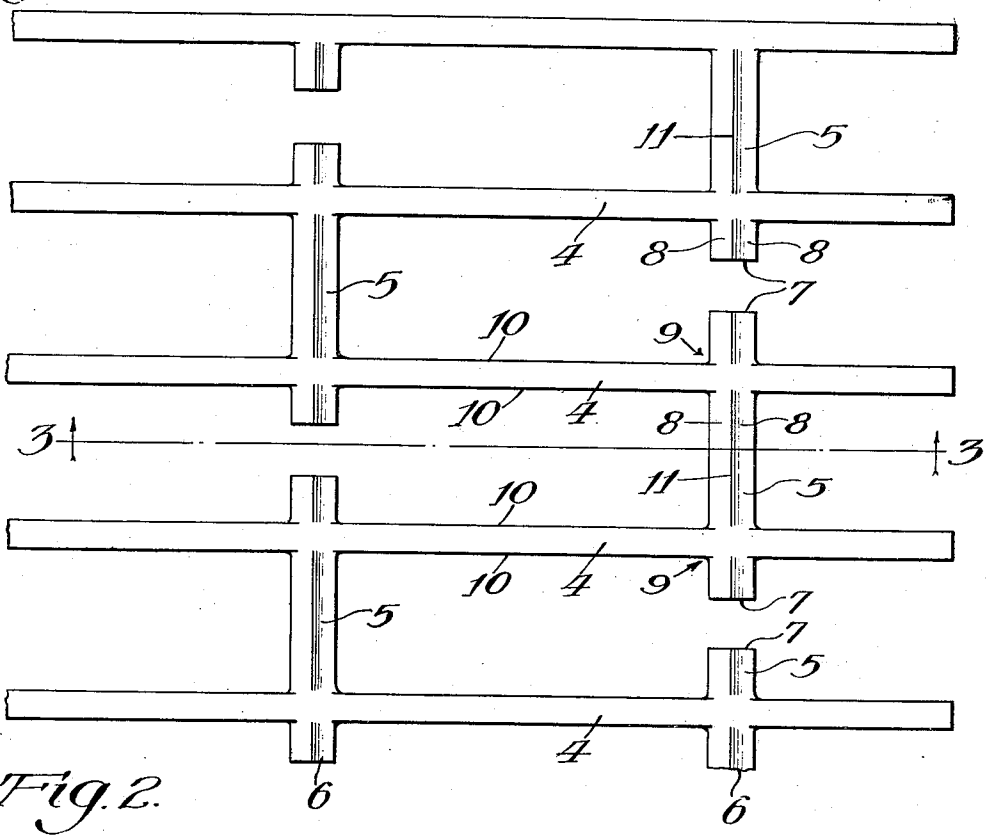


Fig. 2.

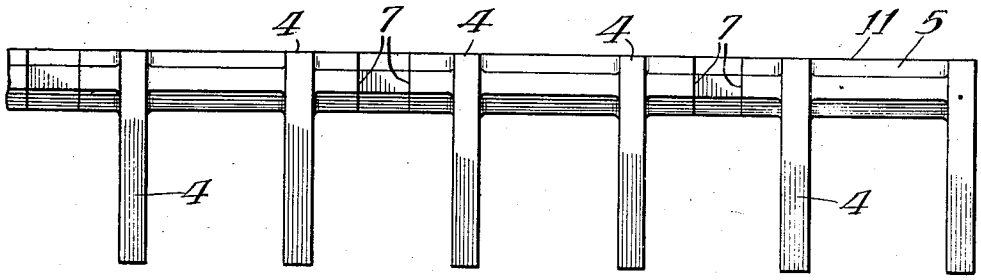
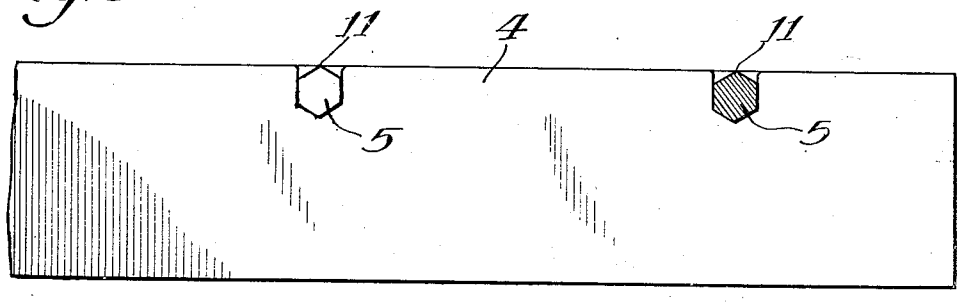


Fig. 3.



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Fig. 4.

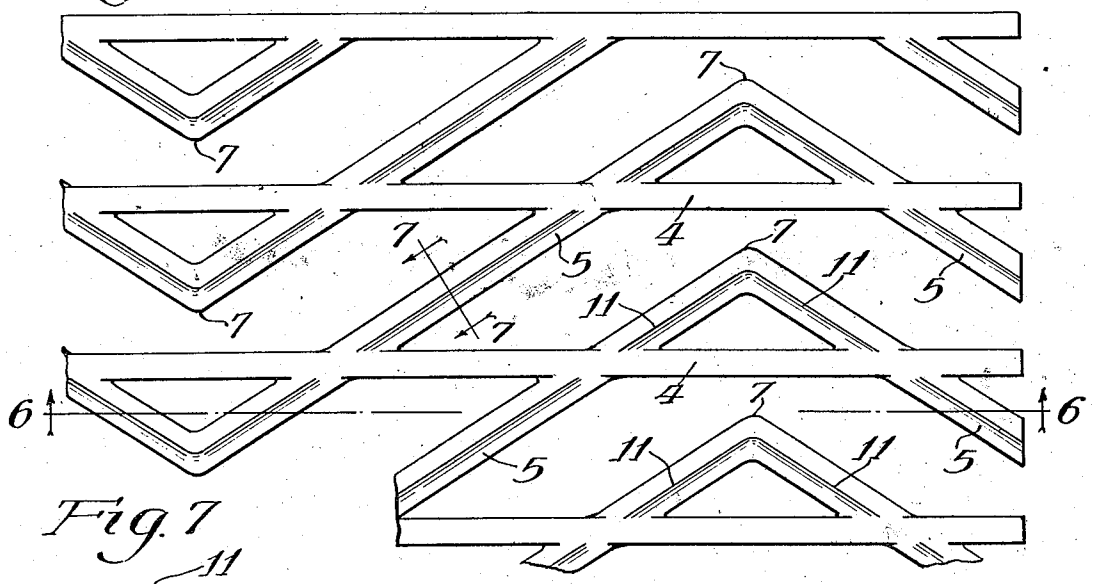


Fig. 7

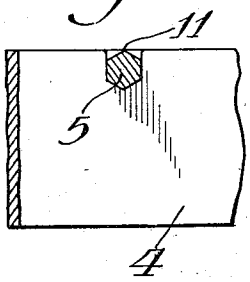


Fig. 8

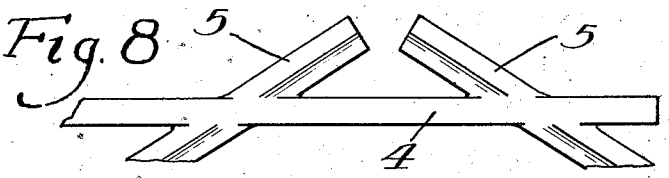


Fig. 5.

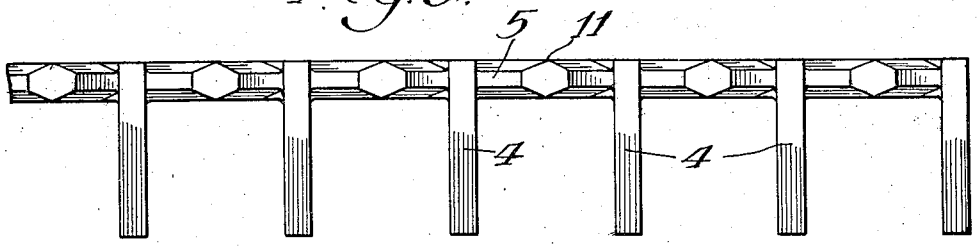
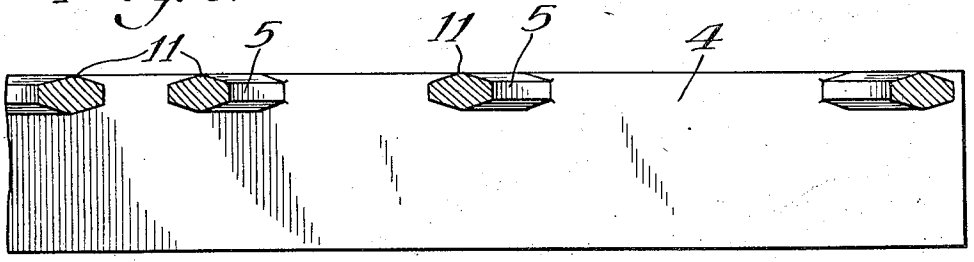


Fig. 6.



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Patented Dec. 26, 1939 2,184,407

UNITED STATES PATENT OFFICE

2,184,407

GRATING

Walter A. Bates, Joliet, Ill., assignor to Beulah H. Bates, Joliet, Ill.

Application November 20, 1937, Serial No. 175,685

2 Claims. (Cl. 189—82)

This invention relates to gratings which are used for flooring, stair treads and for many other like purposes.

The principal object of the invention is to provide a strong grating constructed in such a manner as to present a non-skid surface thereon.

Another object is to provide a strong grating with a surface thereon which will effectively prevent skidding or slipping of a person walking thereupon in any direction.

A further object is to provide a grating having secondary bars arranged in discontinuous rows for the better admission of light therethrough without materially lessening the strength of the grating.

A still further object of the invention is to provide a strong grating having a non-skid surface in all directions which can be easily made and assembled with the parts thereof permanently secured together.

Other objects are to provide a grating wherein transverse forces applied thereto will be absorbed by the main bars extending longitudinally of the grating, to provide a grating with comparatively small openings to effectively prevent the dropping of articles therethrough but with comparatively few interconnecting members between the parts thereof to permit a maximum passage of light through the grating, and to provide a flexible grating that will give slightly when an unusually heavy load is placed thereon but which will not take a permanent set due to the lack of continuity of the secondary bars.

In the accompanying drawings illustrating selected embodiments of the invention:

Fig. 1 is a plan view of a section of grating embodying the invention;

Fig. 2 is an end view of the section of grating shown in Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of a section of grating embodying another form of the invention;

Fig. 5 is an end view of the section of grating shown in Fig. 4;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4;

Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 4; and

Fig. 8 is a detail plan view of another form of the invention similar in many respects to the form shown in Fig. 4.

While I have shown only a small section of the grating in the drawings, it is considered sufficient to explain the invention, but it will be understood that the grating may be made in any size and shape desired and that it may be made in large sections and cut to fit as required. The grating of Figs. 1–3 is composed of main bars 4 of generally rectangular cross-section and arranged in parallel relation. The main bars are interconnected by secondary bars 5 which are secured thereto to hold the main bars in their parallel relation. The secondary bars are preferably of a substantially hexagonal cross-section and contain much less material per unit of length as compared to the main bars. The secondary bars are relatively short in length and preferably extend across the space between adjacent main bars comprising a pair and beyond the main bars of the pair to near the middle of the spaces between the adjacent pairs of main bars. The secondary bars are relatively short, as described heretofore, and a plurality of secondary bars are arranged in parallel rows 6 in aligned relation transversely of the grating with the ends 7 of each secondary bar spaced from the adjacent ends of the next aligned secondary bars. The ends 7 of each secondary bar are arranged at right angles to the surfaces 8 thereof providing a sharp corner therebetween.

As stated heretofore, the secondary bars are preferably of hexagonal cross-section. The secondary bars are secured to the main bars by electrical welding at 9 so that a corner formed by a pair of adjacent surfaces is on the top of the secondary bar or on the top surface of the grating. The secondary bars in adjacent rows thereof are arranged in staggered relation so that the spaces between the secondary bars in a row are not aligned with the spaces between the secondary bars in an adjacent row whereby the secondary bars of one row secure the main bars of a pair together while the secondary bars of an adjacent row secure the pairs of main bars together.

This form of my invention provides a grating which will present a non-skid surface to the sole of the shoe of a person walking thereupon in a transverse direction by reason of the gripping of the corners 10 of the main bars and the corners formed by the surfaces 8 and ends 7 of the secondary bars. It further provides a non-skid surface to the sole of the shoe of a person walking thereon in a longitudinal direction by the gripping of the corners 11 formed by the intersecting of the surfaces 8. A person walking diagonally across the grating will have the sole of his shoe gripped by a combination of these corners. It will also be noted that due to the spac-

ing between the ends of adjacent secondary bars in each row more light is permitted to pass through the grating than would be true if the secondary bars were continuous across the grating. This feature is especially important where a working space is provided below the grating or adjacent to the space below the grating which depends solely or largely for light from a source above the grating.

In the form of the invention shown in Figs. 4–7 the secondary bars 5 are arranged to extend in a diagonal direction in rows across the grating and the secondary bars of one row which extend upwardly to the right in Fig. 4 may be integral with or welded at their ends to the ends of the secondary bars in the adjacent rows wherein the secondary bars extend upwardly to the left in Fig. 4. The ends of the secondary bars in adjacent rows may also be spaced as in Fig. 8. The secondary bars of this form of the invention are also preferably made of material having an hexagonal cross-section with the corners 11 constituting the tread surface of the grating. The particular cross-sectional shape of the secondary bars is relatively unimportant however as long as a corner similar to the corner 11 is provided. The corners 11 on the secondary bars in adjacent rows in this form of the invention extend at an angle to each other and therefore perform the same function as the corners between the ends 7 and the surfaces 8 in the form of Figs. 1–3.

In the embodiment of Figs. 4–7 alternate secondary bars secure the main bars of pairs together while the intermediate secondary bars secure the adjacent pairs of main bars together.

It is obvious that a force applied transversely at any point in both forms of grating will be transmitted through the main bars and secondary bars alternately, twisting the main bars slightly, and upon removal of the force the main bars will return to their original shape and position. If the secondary bars were continuous across the grating they would tend to buckle and take a permanent set upon the application of a force transversely of the grating.

The main bars and secondary bars may be made of any material and of any strength and of any size and of a variety of shapes and any number of them may be used, as described, and while I have shown the invention in selected embodiments which I consider desirable for commercial use I do not thereby intend to restrict the invention specifically thereto and reserve the right to make any changes in the form, construction and arrangement of parts as may be necessary or desirable to satisfy different conditions within the scope of the following claims.

I claim:

1. A grating comprising a plurality of pairs of spaced relatively wide main bars, said pairs of main bars being arranged in spaced relation, a plurality of rows of spaced hexagonal secondary bars arranged substantially transversely of the main bars and being alternately staggered and in alignment with each other and projecting beyond the outer sides of the pairs of main bars to provide open spaces between said pairs of main bars and also projecting beyond the inner sides of each of the main bars thereby providing open spaces between each of the bars of the said pairs of main bars, and the secondary bars being disposed in said main bars to present corners thereof that are substantially flush with the top surface of the main bars.

2. A grating comprising a plurality of pairs of spaced relatively wide main bars, said pairs of main bars being arranged in spaced relation, a plurality of rows of spaced secondary bars arranged substantially transversely of, and held in substantially the same plane as, the main bars and being alternately staggered and in alignment with each other and projecting beyond the outer sides of the pairs of main bars to provide open spaces between said pairs of main bars and also projecting beyond the inner sides of each of the main bars thereby providing open spaces between each of the bars of said pairs of main bars.

WALTER A. BATES.