Jan. 23, 1934. A. J. BATES ET AL 1,944,207

GRATING

Filed Jan. 17, 1931

Fig. 1.

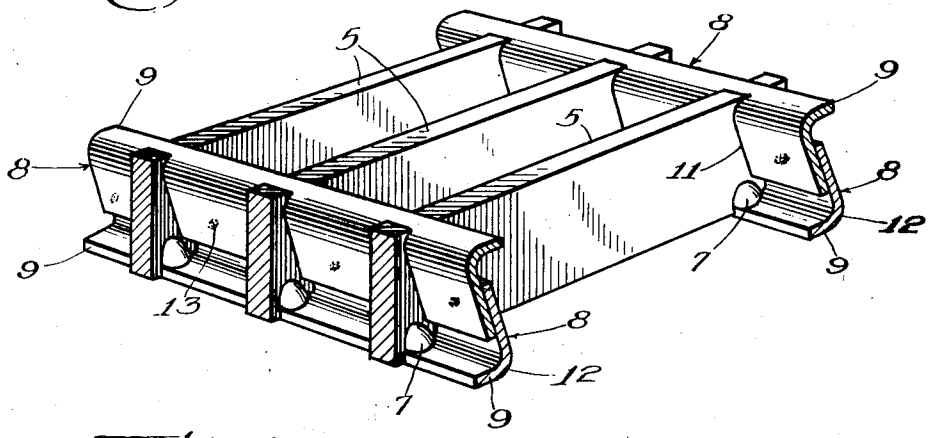


Fig. 2.

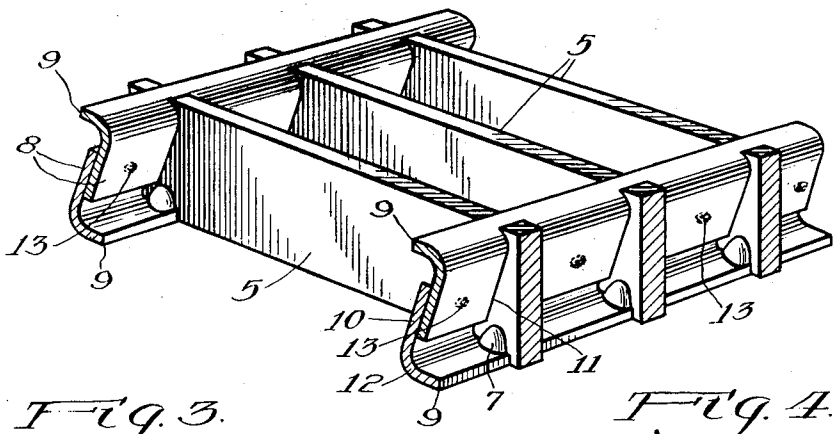


Fig. 3.

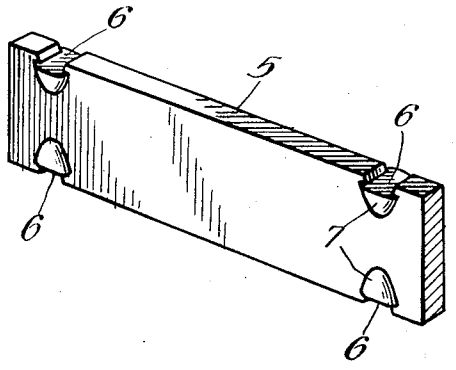
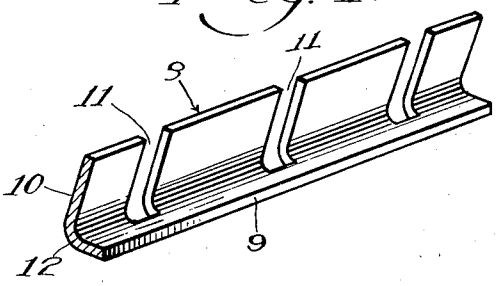


Fig. 4.



Inventors:
Albert J. Bates and
By Walter A. Bates
Wm. O. Bell Atty.

Patented Jan. 23, 1934 1,944,207

UNITED STATES PATENT OFFICE

1,944,207

GRATING

Albert J. Bates, Chicago, Ill., and Walter A. Bates, Gary, Ind., assignors, by direct and mesne assignments, to Beulah H. Bates, Gary, Ind.

Application January 17, 1931. Serial No. 509,300

15 Claims. (Cl. 94—30)

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

The object of the invention is to provide a strong and rigid grating containing few parts which can be easily made and assembled to produce a grating with the bars spaced apart as desired and which will hold its shape and rigidity under heavy strains and general usage.

Another object of the invention is to provide a grating of assembled parts rigidly and permanently secured together so that the grating may be used in any position and on either side with equally satisfactory results.

A further object of the invention is to construct and assemble and secure the main bars and the cross bars composing the grating in a simple but rigid and permanent manner which will prevent the bars from shifting relatively in any direction and thereby provide a strong and substantial grating to resist the most severe strains, jars and jolts in any use thereof.

And a further object of the invention is to provide a grating composed of main bars and cross bars permanently and securely assembled and of such construction that the main bars can be cut close to the cross bars and thereby enabling the grating to be fitted to any requirements without weakening or otherwise reducing the strength and rigidity of the grating.

In the accompanying drawing illustrating a selected embodiment of the invention

Fig. 1 is a sectional perspective view illustrating a small section of the grating;

Fig. 2 is a similar view of the same grating in reverse position;

Fig. 3 is a detail perspective sectional view of a main bar;

Fig. 4 is a similar view of a cross bar member.

While we have shown only a small section of the grating in the drawing, 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 is composed of main bars 5 of substantial section arranged in parallel relation and maintained in this spacing and relation by interfitting cross bars suitably spaced apart. These bars are preferably made of steel and of such strength and section as may be required to satisfy different requirements. Notches 6 are punched in the longitudinal edges of the main bars and the metal displaced projects at 7 on the sides of the bars. Each cross bar is made up of two identical longitudinal sections 8, Fig. 4, and each section is provided with a tension member 9 formed by bending the section transversely and continuously adjacent one longitudinal edge thereof so that the tension member of the section will extend substantially at right angles to the body 10 of the section. The body of each section is provided with transverse slots 11 which extend through the edge of the body and preferably through the bend 12 connecting the body with the tension member and these slots are spaced apart to receive the main bars 5. The parts forming the grating may be assembled by arranging a plurality of main bars 5 in spaced parallel relation upon a required number of cross bar sections 8 with the main bars seated in the slots 11 of the cross bar sections and the tension members of the cross bar sections seated in the notches 6 of the main bars. The projections 7 form elongated seats in the notches for the tension members. A corresponding number of cross bar sections is then arranged on the main bars at the top thereof with the main bars seated in the slots and the tension members of the cross bar sections seated in the notches as before explained. The bodies of the two sections of each cross bar are then spot-welded at 13 at suitable intervals, or are otherwise rigidly secured together and thus the two sections of each cross bar will become permanently fastened together to form a rigid and complete cross bar and each section thereof and the cross bar as a whole is rigidly interlocked with each main bar by reason of the tension members of the cross bar being seated in the notches of the main bars. This construction not only permanently connects the main bars and cross bars together but it also provides for absolute rigidity of the grating and ensures against any relative movement of the bars in any direction. The tension members of each cross bar are seated in the notches of the main bars flush with the longitudinal edges of the main bars to form a smooth surface on each side of the grating. The grating is reversible side for side and either side may be used for the upper or tread side because in either position the grating presents substantially the same structural arrangement and appearance of parts. The main bars are maintained by the cross bars in spaced parallel relation and the cross bars are rigidly and permanently assembled and secured with the main bars to form a grating which will resist tendency to bend or sag or break under heavy loads and rough usage. The main bars may be cut close to the cross bars, as shown in Figs. 1 and 2, without affecting the

interlock of the bars or the strength of the grating, and the cross bars may also be cut close to the main bars as required although it is preferable not to cut the cross bars as close as the main bars.

The bars may be made of any material and of any strength and cross section and any number of them may be used, as desired, and changes may be made in the form, construction and arrangement of parts to satisfy different conditions, within the scope of the following claims.

We claim:

1. A reversible grating comprising a plurality of main bars and tension cross bars, said main bars being arranged in spaced relation and said cross bars being slotted between their outer edges to receive the main bars, and means securing said bars together, said bars being of substantially equal depth and having their edges on each side disposed in substantially the same plane.

2. A grating comprising a plurality of cross bars each of which is composed of two sections, said sections having registering slots, said slots opening at the inner edges of the sections and forming closed slots in the cross bar, a plurality of main bars extending through and embraced in said slots in the cross bars, and means securing the sections of the cross bars together and the cross bars in interlocking relation with the main bars.

3. A grating comprising a plurality of cross bars having transverse closed slots therein, a plurality of main bars extending through said slots, and means at the opposite edges of said bars interlockingly securing the bars together.

4. A grating comprising a plurality of cross bars having transverse closed slots therein, a plurality of main bars extending through said slots, said main bars having notches in opposite edges thereof to receive parts of the cross bars for securing the bars together.

5. A grating comprising a plurality of cross bars having transverse closed slots therein, a plurality of main bars extending through said slots, said main bars having notches in opposite edges thereof with extended seats at the bottom thereof to receive parts of the cross bars for interlockingly securing the bars together.

6. A grating comprising a plurality of cross bars having transverse closed slots therein, a plurality of main bars extending through said slots, said main bars having notches punched in its opposite edges thereof with the metal displaced by the punching projecting at the sides of the main bar to form an extended seat at the bottom of each notch, and parts of the cross bars seated in said notches to interlockingly secure the bars together.

7. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars having a tension member.

8. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars having a tension member at each longitudinal edge thereof.

9. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars having oppositely directed tension members at the longitudinal edges thereof.

10. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars comprising two sections rigidly secured together and each section comprising a body and a bent tension member at the outer edge thereof.

11. A grating comprising a plurality of main bars and cross bars, the cross bars comprising longitudinal sections rigidly united, said sections having tension members at their outer edges and said cross bars having slots between said tension members to receive the main bars.

12. A grating comprising a plurality of main bars and cross bars, the cross bars comprising longitudinal sections rigidly united, said sections having tension members at their outer edges and said cross bars having slots between said tension members to receive the main bars, and said main bars having notches to receive the tension members.

13. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars comprising two sections rigidly secured together, the outer edges of each cross bar being bent angularly to the intermediate portion of the cross bar, and said intermediate portion having closed slots which terminate at the angular edge portions to receive the main bars.

14. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars comprising two sections having slots therein and said sections being rigidly secured together with the slots in the sections registered to form closed slots in the cross bars to receive the main bars, the marginal edges of each cross bar being bent angularly to the intermediate portion of the cross bar and seated upon the main bars.

15. A grating comprising a plurality of main bars and cross bars interlockingly secured together, each of said cross bars comprising two sections rigidly secured together, the outer edges of each cross bar being bent angularly to the intermediate portion of the cross bar, said intermediate portion having closed slots which terminate at the angular edge portions to receive the main bars, and said main bars being notched to receive said angular edge portions.

ALBERT J. BATES.
WALTER A. BATES.