Sept. 17, 1935. E. L. TAROF 2,014,912

GRATING

Filed April 3, 1935

Fig. 1.

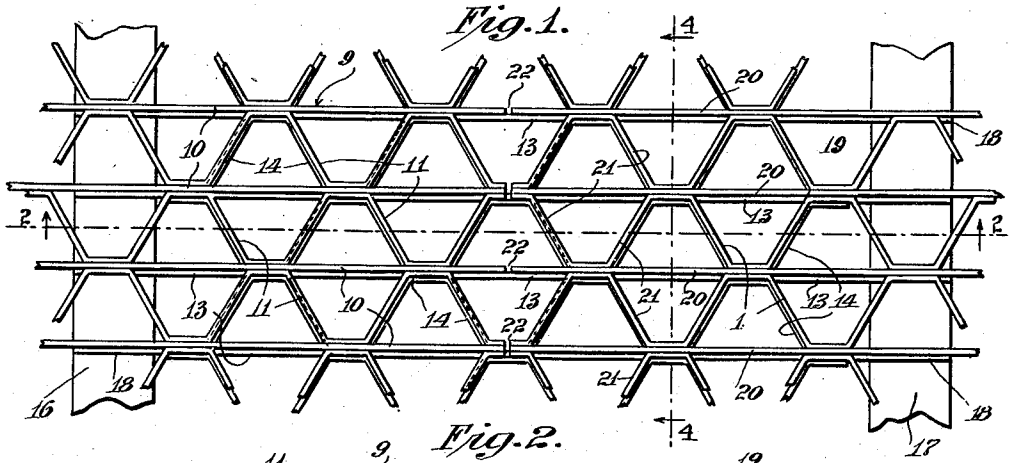


Fig. 2.

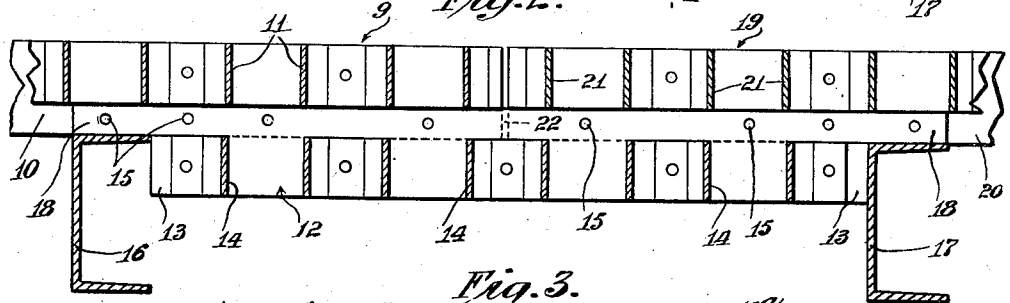


Fig. 3.

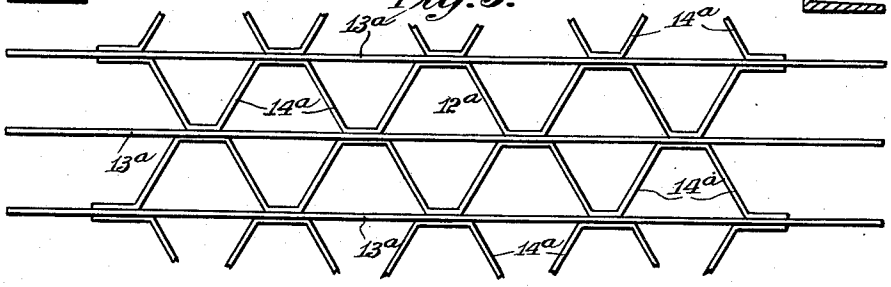
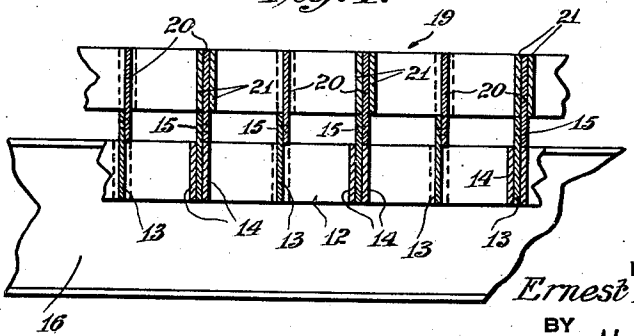


Fig. 4.



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GRATING

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Application April 3, 1935, Serial No. 14,393

12 Claims. (Cl. 189—82)

This invention relates to gratings such as are used for flooring and other purposes, and has for its object to provide a simple and inexpensive means for reinforcing and splicing sections of grating.

One suggestion for splicing the ends of the grating sections together has contemplated, some of the straight bars and some of the spacing bars in each section being longer than others, in order that the grating sections may overlap longitudinally, at least in part. Instead of such a construction, it has been discovered that sections of grating may be spliced without being longitudinally overlapped, by the use of an additional splicing section of grating. Such an expedient is desirable because it minimizes the change in appearance or configuration of the gratings, and also strengthens the spliced portions.

Referring to the drawing:

Fig. 1 is a top plan view of one embodiment of this invention.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a top plan view of a modified form of spacing members for use in the lower or splicing grating, in order that the bent members may be substantially alined with the bent members in the superposed gratings.

Fig. 4 is a section on the line 4—4 of Fig. 1.

A portion of a grating section 9 comprises the usual straight bars 10 and a number of spacer or bent bars 11 arranged between the straight bars in a conventional manner. From Fig. 2 it will be apparent that the straight bars 10 are substantially deeper than the bent bars 11, and as is customary, the tops of the bent or spacer bars 11 are substantially flush with the tops of the straight bars 10. As is usual, the spacer bars are fastened to the straight bars 10 by spot welding or riveting, or other fastening means.

To assist in supporting the overhanging end portion of the grating 9, another grating 12 is provided with its ends supported as shown in Fig. 2. This second grating section is similar to the first in that it is comprised of straight bars 13, and spacer bars 14 of the same shape as the spacer bars 11 of the first grating. A salient difference between the first and second grating resides in the second grating being inverted with respect to the first, that is the bent bars 14 are arranged with their bottom edges flush with the bottom edges of the straight bars 13. The portions of the straight bars 10 and 13 not on the same level with the bent bars, are overlapped in depth as shown in Fig. 4, and these overlapped portions of the straight bars 10 and 13 are secured together by spot welds 15, or equivalent fastening means. Any convenient number of such spot welds 15 may be used. As shown in Fig. 2, the straight bars 13 have their end portions shaped to rest on the beams 16 and 17, which support the superposed gratings. As shown in Fig. 4, the grating 12 acts as a support for the grating 9, not only by means of the spot welds 15 but also because the straight bars 13 may have their tops contiguous the bottom edges of the bent bars 11, or the bottom edges of the straight bars 10 may rest on the top edges of the spacer bars 14 in order that the grating 12 may directly support the overhanging end of the grating 9.

A third grating 19 may also be arranged with its end substantially contiguous the end of the grating 9, the grating 19 being supported in a similar manner to that described for the grating 9. The grating 19 is similar in construction to the grating 9, being comprised of straight bars 20 and bent spacer bars 21. The adjacent ends of the gratings 9 and 19 are shown as being substantially contiguous at the spliced joint 22 in Fig. 1.

From Fig. 1 it will be seen that the bent spacer bars of the lower or splicing grating are not in direct vertical alinement with the corresponding bars in the superposed grating sections, due to the vertical bars being lapped as shown in Fig. 4. In order that the bent bars in the grating 12 may have their inclined portions in direct alinement with the corresponding portions of the superposed gratings 9 and 19, the spacer bars 14*a* may have a slightly modified shape as shown in Fig. 3 in the grating section 12*a*. It will be understood that the portions of the spacer bars contiguous the straight bars 13*a* will not be in direct alinement with the corresponding portions of the spacer bars in the superposed gratings, but the inclined portions of the spacer bars 14*a* may be in perfect alinement with the inclined portions of the superposed sections, which is not true in Figs. 1 and 2.

Where the ends of the grating 12 are supported as illustrated, the grating section 12 constitutes a strengthening and splicing means for the overhanging end portions of the gratings 9 and 19. The grating 12 reinforces and supports the adjacent ends of the gratings 9 and 19, even if the spot welds between the straight bars 13 and the straight bars 10 and 20 be omitted, because the bottom edges of the bars of a superposed section rest on the top edges of the bars of the lower section. The splicer section of grating 12 is of the same construction as the superposed sections, ex-

cept for the notched end portions of the straight bars 13 resting on the beams 16 and 17. The use of standard grating construction for all three sections and the elimination of any unusual shape to the end portions of the gratings is a feature deserving attention in this invention. The lower grating 12 has its spacer bars 14 nearly vertically alined with the spacer bars 11 and 21 in the superposed sections as shown in Figs. 1 and 2 so that the appearance, design and configuration of the grating is maintained. The splicer section 12 is fastened only to the lapped portions of the straight bars. In addition to its use as illustrated, the lower grating 12 may have its ends unsupported except by the overlying grating or this grating 12 may be fastened intermediate the ends of a long superposed grating to stiffen it and increase its resistance to bending. In other words, when the lower grating 12 is secured intermediate the ends of an overlying grating, the ends of the grating 12 need not necessarily be supported. The grating 12 acts as a reinforcing unit, not only because of the straight bars 13, but also due to the strengthening effect of the spacer bars 14. Where a floor is filled with concrete, for example, the reinforcing grating 12 in Fig. 1 substantially eliminates any negative bending moment which might cause the concrete to crack over a supporting beam. The splicer section 12 may be secured to one of its superposed sections in the factory, making it necessary only for it to be secured to the other superposed section at the place of installation, or, if desired, this grating 12 may also be secured to both the gratings 9 and 19 at the place of installation, since it is a relatively simple matter to secure the overlapped portions of the straight bars by spot welds or rivets. To assist in vertically alining the spacer bars of both the upper and lower sections, guide holes for a rivet may be provided in the lapped straight bars at the factory.

The splice of this invention is desirable for gratings when the same are used as walkways, bridge floors, vehicular floors and for armoring concrete, in fact the upper and lower gratings of Fig. 2, for example, may be filled to any depth with concrete or other cementitious material.

The construction of this invention is cheaper, simpler and stronger than some of the previous ways of splicing grating sections. The construction comprises no hinge joints and the straight bars of the splicing grating can be made as deep as desired, so that even greater strength is obtainable in the reinforced portion. While the spacing bars are shown as being bent, it will be understood that such spacing bars may be of any shape desired, whether bent or straight.

The straight bars 13 in the lower grating have their end portions of reduced depth as shown by the numeral 18, where such bars rest on the supports 16 and 17.

I claim:

1. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth and fastened to the straight bars of the first grating between the spacing bars of each grating.

2. In a metal grating comprising a plurality of straight bars, spacing bars secured between the streight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth and fastened to the straight bars of the first grating between the spacing bars of each grating, said second mentioned grating extending well beyond an end of the first mentioned grating for similar attachment to a third grating, the end of which is adjacent the end of the first grating.

3. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth with the straight bars of the first grating between the spacing bars of each grating, said second mentioned grating extending well beyond an end of the first mentioned grating for supporting such end and an end portion of a third grating, the end of which is adjacent the end of the first grating, said second mentioned grating having its end portions provided with supports.

4. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth with respect to the straight bars of the first grating and between the spacing bars of each grating, said second mentioned grating extending beyond an end of the first mentioned grating, supports for each end of the second grating, one set of bars in the second grating supporting another set of bars in the first grating.

5. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, another grating having an end substantially contiguous an end of the first grating, and a plurality of straight bars supported at each end and lapped in depth below the spacing bars of the first and second gratings and secured to and spanning the ends of the straight bars of the first and second gratings.

6. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth and fastened to the straight bars of the

first grating between the spacing bars of each grating, the spacing bars of the second grating being substantially vertically alined with the spacing bars of the first grating to preserve the design and appearance of the first grating.

7. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth and fastened to the straight bars of the first grating between the spacing bars of each grating, the spacing and straight bars of the second grating being out of vertical alinement with the corresponding bars of the first grating by an amount no greater than their thickness.

8. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth with respect to the straight bars of the first grating and between the spacing bars of each grating, said second mentioned grating extending beyond an end of the first mentioned grating, supports for each end of the second grating, the spacing bars of the second grating constituting a support for the straight bars of the first grating.

9. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth with respect to the straight bars of the first grating and between the spacing bars of each grating, said second mentioned grating extending beyond an end of the first mentioned grating, supports for each end of the second grating, the straight bars of the second grating constituting a direct and contiguous support for the spacing bars of the first grating.

10. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and of less depth than the straight bars but having their top edges substantially flush with the tops of the straight bars, the improvement which comprises another metal grating having straight bars and spacing bars, the second grating being inverted with respect to the first mentioned grating and having the straight bars of the second grating lapped in depth and fastened to the straight bars of the first grating between the spacing bars of each grating, the spacing bars of the second grating being substantially vertically alined with the spacing bars of the first grating to preserve the design and appearance of the first grating, the spacing bars of the first grating being bent with substantially equal longitudinal portions thereof lying contiguous one of its adjacent straight bars, and longitudinal portions thereof lying contiguous the other of its adjacent straight bars, but the longitudinal portions of each spacing bar contiguous one straight bar being of less length than the corresponding portions adjacent the other contiguous straight bar.

11. A metal grating comprising straight bars, and a bent spacer bar between each adjacent pair of straight bars, the bent spacer bars being shaped to lie contiguous the straight bars for a short distance, such contiguous portions of the bent spacer bars on opposite sides of the straight bars being longer on one side than on the other side thereof.

12. In a metal grating comprising a plurality of straight bars, spacing bars secured between the straight bars and having their top edges substantially flush with the tops of the straight bars, a similar grating substantially abutting the end of the first grating, another similar grating below and contiguous the previously-mentioned gratings and spanning their adjacent ends to assist in supporting the end portions of the first-mentioned gratings, means for supporting said lower grating, and means for positioning said lower grating in substantial alignment with the upper gratings.

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