Sept. 20, 1960 E. T. LORIG 2,952,905

METHOD OF MAKING OPEN FLOOR GRATINGS

Original Filed Aug. 3, 1955 2 Sheets-Sheet 1

FIG. 1.

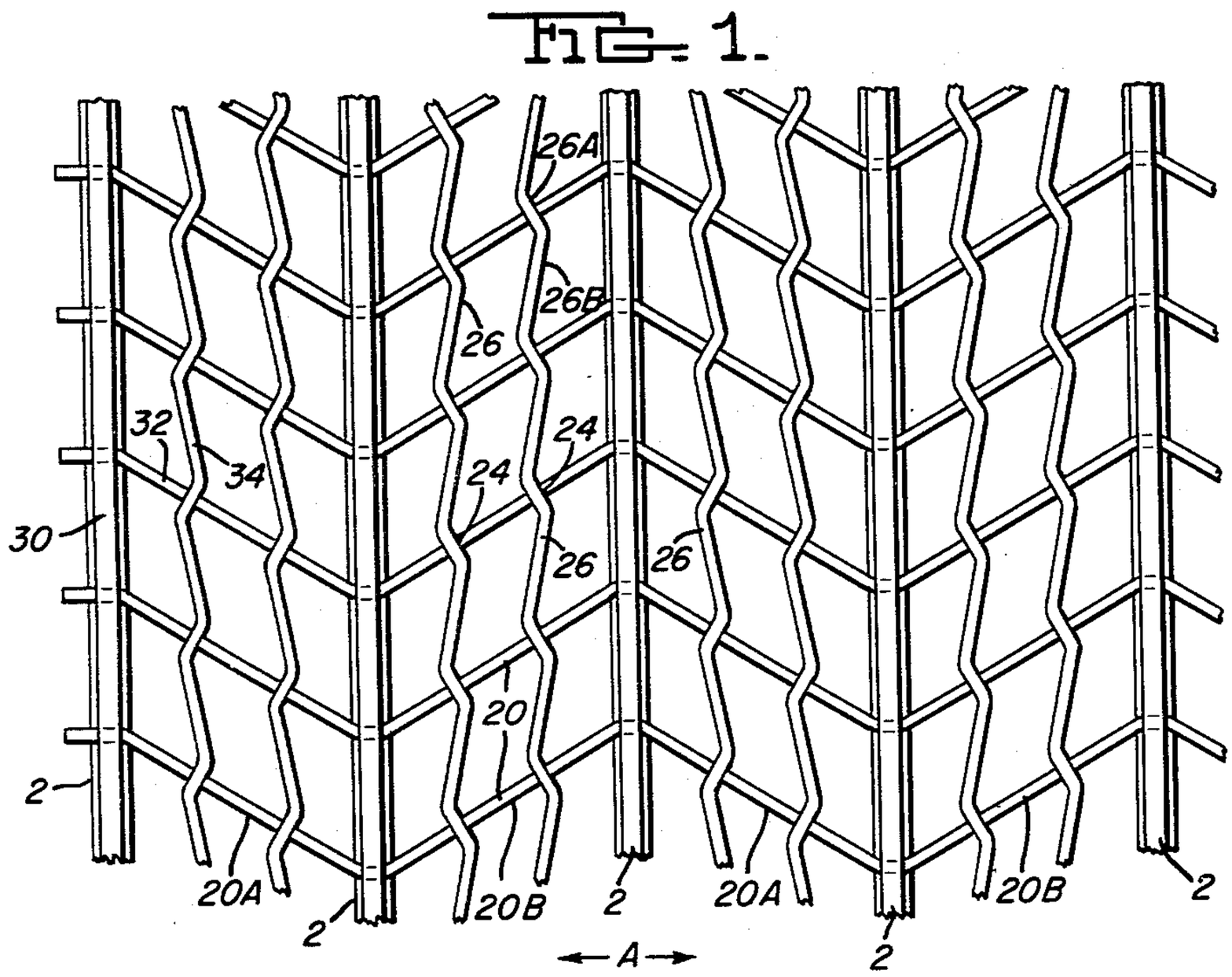

FIG. 2.

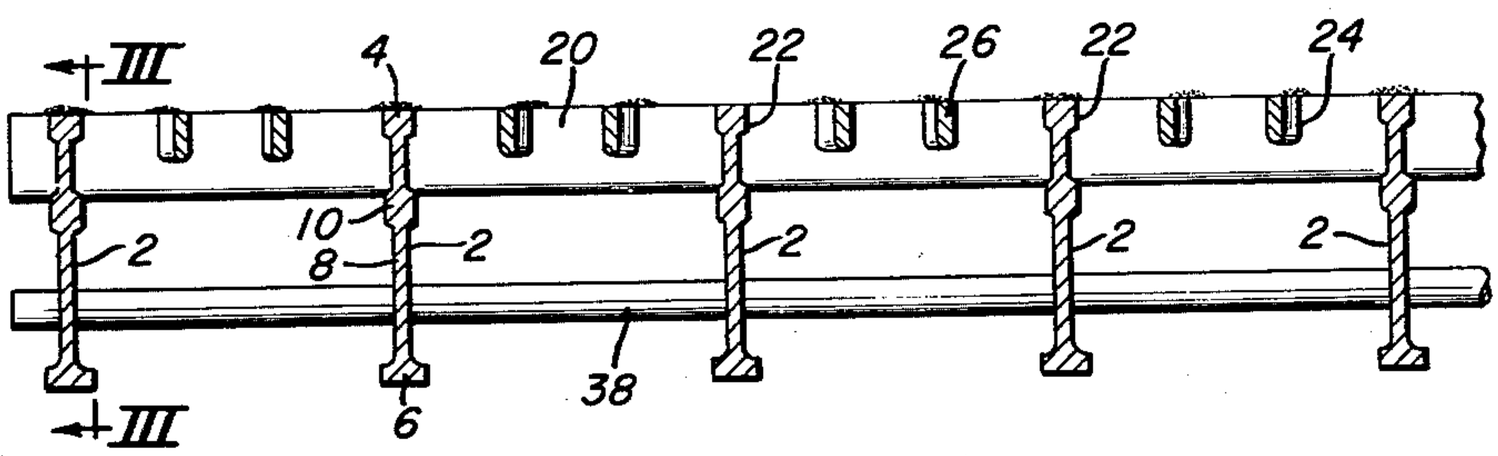

FIG. 3.

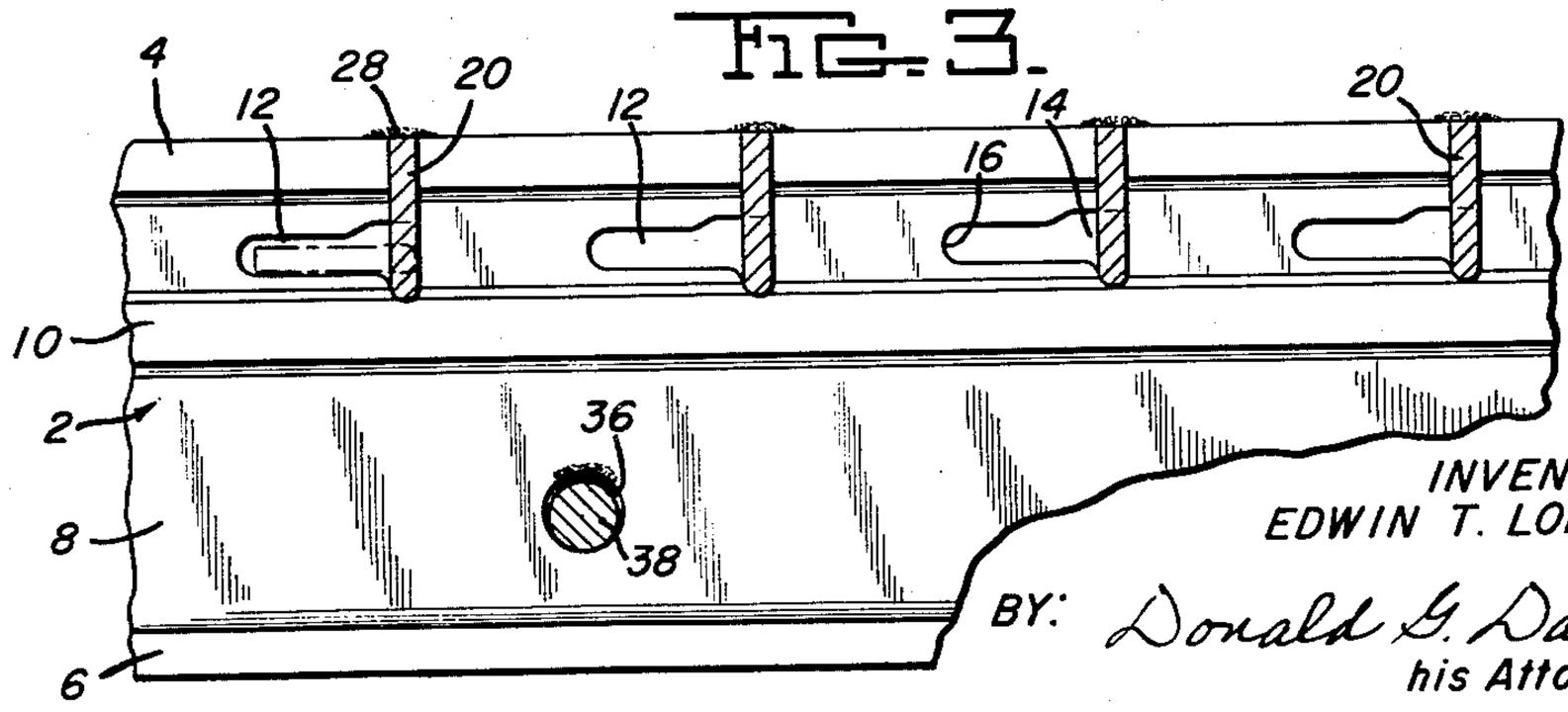

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FIG. 4.

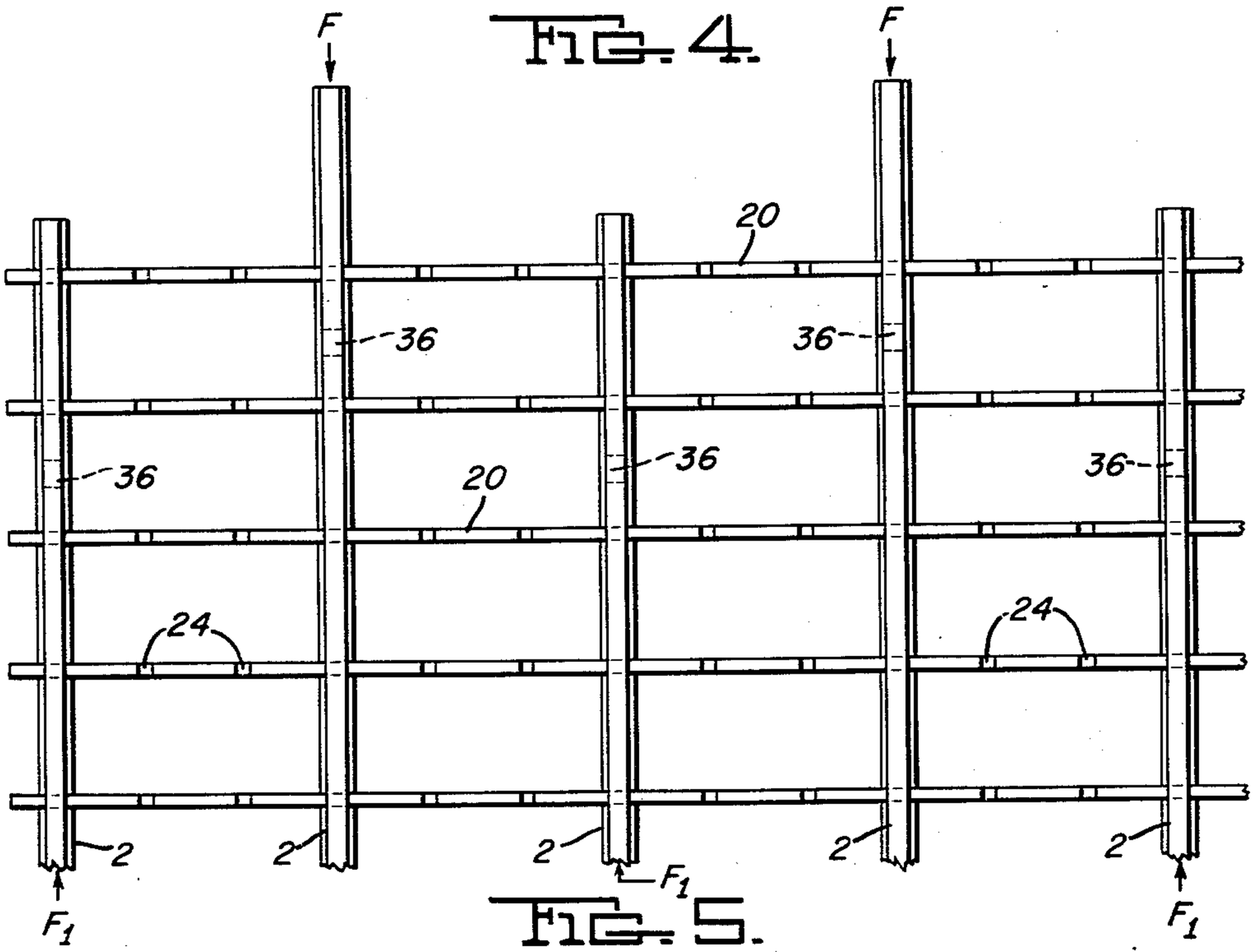
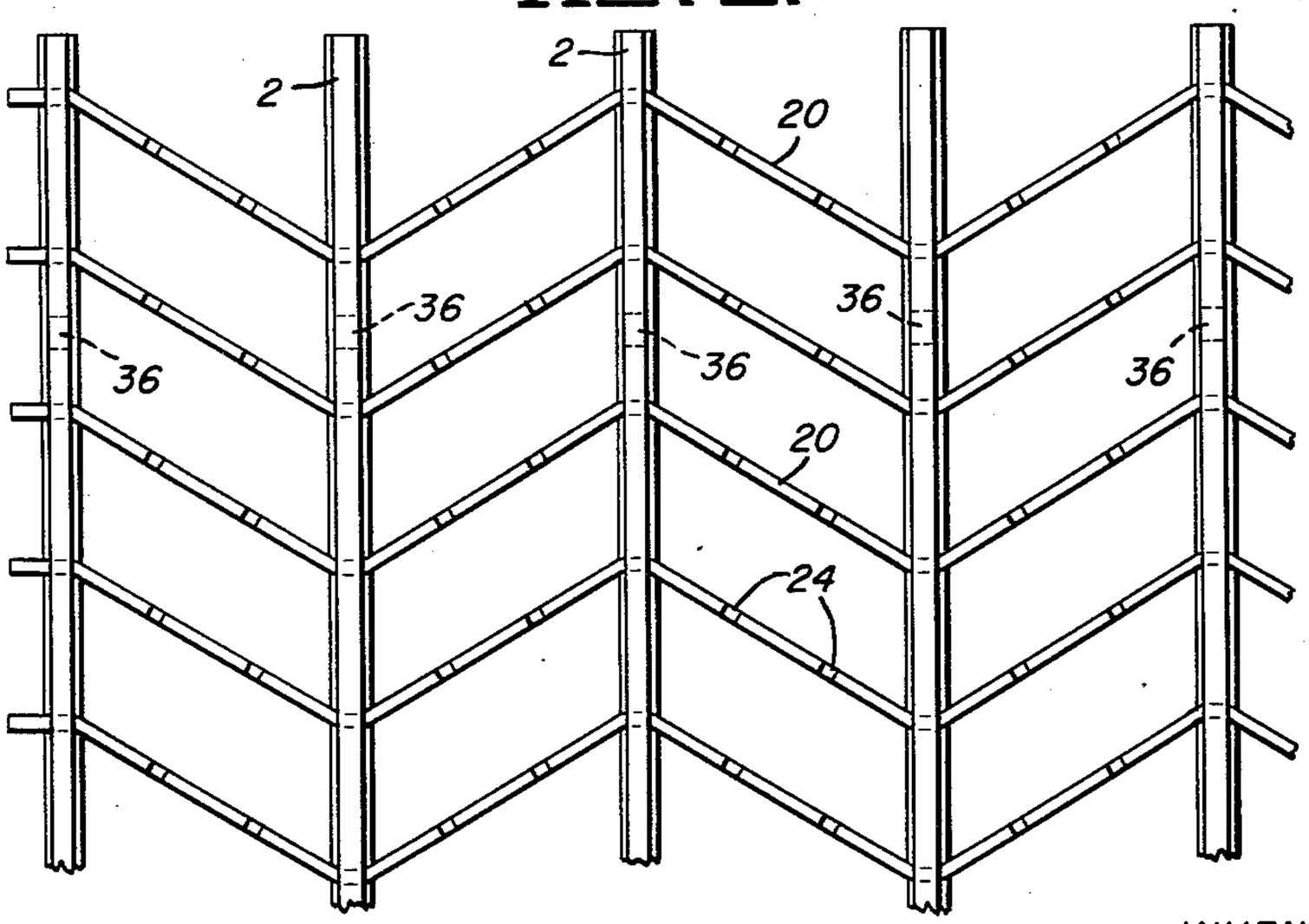


FIG. 5.



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METHOD OF MAKING OPEN FLOOR GRATINGS

Edwin T. Lorig, Pittsburgh, Pa., assignor to United States Steel Corporation, a corporation of New Jersey

Original application Aug. 3, 1955, Ser. No. 526,233. Divided and this application Nov. 6, 1956, Ser. No. 620,639

2 Claims. (Cl. 29—428)

This invention relates to a method of making open floor gratings and more particularly to such gratings used on bridge roadbeds, and is a division of my copending application Serial No. 526,233, filed August 3, 1955, now abandoned. Gratings now in general use are constructed in such a manner that automobiles or vehicles passing thereover must do so at a relatively low speed to avoid accidents. Even at relatively low speeds automobiles tend to jump around as they pass over the open floor grating with resultant danger of skidding.

It is therefore an object of my invention to provide a method of making an open floor grating.

This and other objects will be more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a fragmentary plan view of the preferred embodiment of my invention;

Figure 2 is a fragmentary end elevation of the device of Figure 1;

Figure 3 is a sectional view on the line III—III of Figure 2;

Figure 4 is a plan view showing an intermediate step in the fabrication of the grating of Figure 1; and

Figure 5 is a plan view, similar to that of Figure 4, showing a further step in the manufacture of the grating.

Referring more particularly to the drawings, reference numeral **2** indicates the primary members of the grating. Each of the primary members is provided with a head **4**, a foot **6** and connecting web **8**. An enlargement or rib **10** is provided on the web **8** below the head **4**. A plurality of slots **12** are arranged in the web **8** immediately below the head **4**. The slots **12** may be formed as shown in the patents to Greulich No. 2,275,104 and 2,275,105, dated March 3, 1942. However, it is preferred to make the slots generally T-shaped as shown with their longest portions or legs extending along the axis of the web and the short legs **14** extending vertically. The corners of the slots **12** are rounded at **16**. Secondary members or bars **20**, which are substantially rectangular in cross section, are provided with spaced apart recesses **22** on their upper edges which are adapted to receive the heads **4** of the primary member **2**. The secondary members **20** are provided with spaced apart notches **24** for receiving tertiary bars or members **26**. The construction so far described is essentially as shown in the above identified Greulich patents. However, my improved grating construction differs from that of the Greulich patents in several important respects. The secondary bars **20** are arranged in a zig-zag fashion as best shown in Figure 1 with the portions **20**A extending in one direction and adjacent portions **20**B extending in the opposite direction. Portions **20**A and **20**B are preferably arranged at an angle of between approximately 20 and 30° to the direction of the traffic which is indicated by the arrows A of Figure 1. Tertiary bars **26** instead of being straight are preferably sinuous with portions **26**A adjacent the bars **20** being perpendicular to the bars **20** and the portions **26**A being connected by straight portions **26**B. The grating is preferably constructed in the following manner. A plurality of primary bars **2** are arranged in spaced apart relationship with their apertures **12** in alignment. At least three and preferably more of such bars are necessary in each grating section. Straight secondary bars **20** are inserted in the openings **12** in the manner described in the above mentioned Greulich patents. Alternate bars **2** extend beyond the other bars as shown in Figure 4. Forces F are then applied simultaneously to the alternate primary members **2** of the assembly as shown in Figure 4 in order to move alternate primary members longitudinally with respect to the remaining primary members. At the same time forces F_1 may be applied to the remaining primary members in the direction opposite forces F. This movement bends secondary bars **20** and moves the ends of the primary bars **2** into alignment with one another as shown in Figure 5. The tertiary members **26** are then placed in notches **24** and the assembly welded together at the intersections of the bars. Welds **28** may extend above the surface of the grating. It will be seen that this grating is made up of a plurality of generally rectangular bars arranged on edge and welded together to form a plurality of traffic supporting surfaces **30**, **32** and **34**, with all these surfaces being arranged at an angle of at least 20° to the direction of traffic. The surfaces **30**, **32** and **34** are in substantially the same plane, that is, they may be in exactly the same plane or some of the surfaces may be slightly above the other surfaces as is common practice in the construction of open floor gratings. The width of the traffic supporting surfaces should be less than one-fourth the width of the tires of vehicles passing thereover and for best results this width should be about 5% of the width of the tires. It will be understood that truck tires are much wider than ordinary automobile tires and that this relationship does not relate to trucks but to automobiles. While the tertiary bars **26** may be straight it is preferred to have them sinuous as shown in order to give resiliency to the grating. It is absolutely necessary that the grating be arranged with respect to the direction of traffic in the manner shown. The reason for this is that there should be no traffic supporting surfaces parallel to or closely parallel to the direction of traffic movement.

Openings **36** may be provided in that portion of the web **8** below the bottom of the secondary and tertiary member with the apertures being spaced in such a manner that they will be in alignment after the alternate primary members have been moved to the position shown in Figure 5. Tie bars **38** can then be inserted through aligned openings **36** and welded in place.

While one embodiment of my invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. The method of making an open floor grating which comprises arranging in parallel relationship at least three primary members having spaced apertures therein with the apertures in the various members being in alignment, arranging a secondary member in each series of aligned openings at right angles to the primary members, then moving alternate primary members longitudinally with respect to the remaining primary members to form bends in the secondary members at each intersection with the primary members, said secondary members having spaced notches in their upper surfaces between the primary members with the notches in the various secondary members being substantially in alignment after the alter-

nate members are moved, arranging a tertiary member in each series of aligned notches generally parallel to the primary members and welding the members together at their intersections.

2. The method of making an open floor grating according to claim 1 including sections in the primary members extending below the remaining members with spaced apertures in said sections, the apertures in the various members being in alignment after the alternate primary members are moved, inserting tie bars in said aligned apertures, and then welding said tie bars to said sections.

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