

July 23, 1946.

E. C. ELLIOTT

2,404,570

STRUCTURAL GRATING

Filed Oct. 11, 1944

2 Sheets-Sheet 1

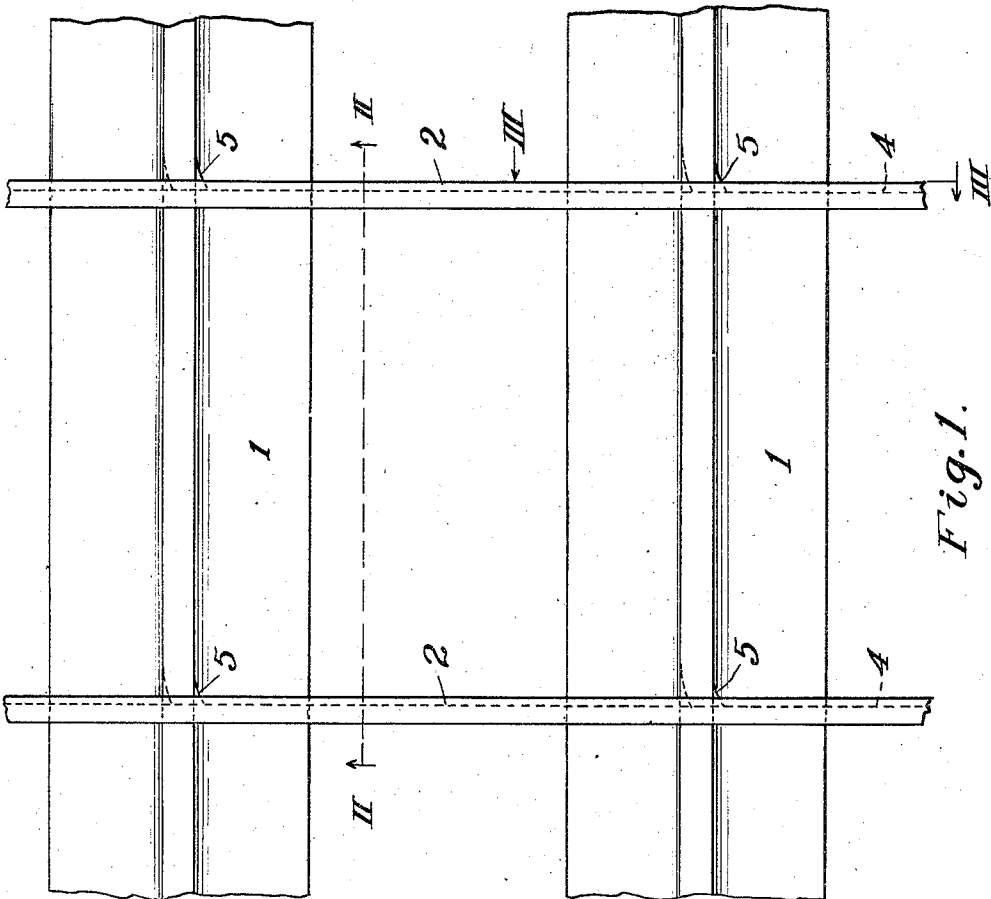


Fig. 1.

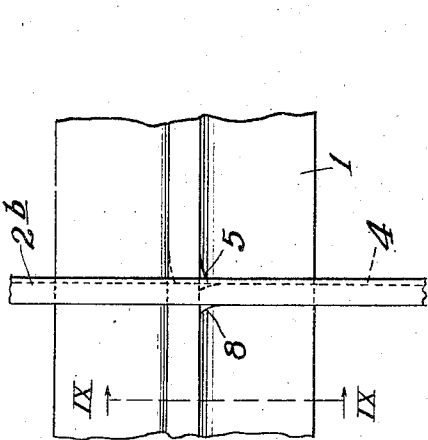


Fig. 8.

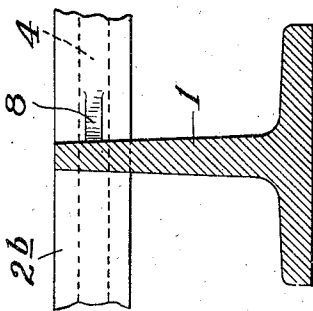


Fig. 9.

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2 Sheets-Sheet 2

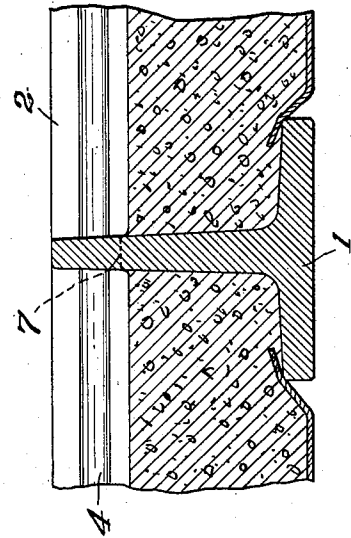


Fig. 3.

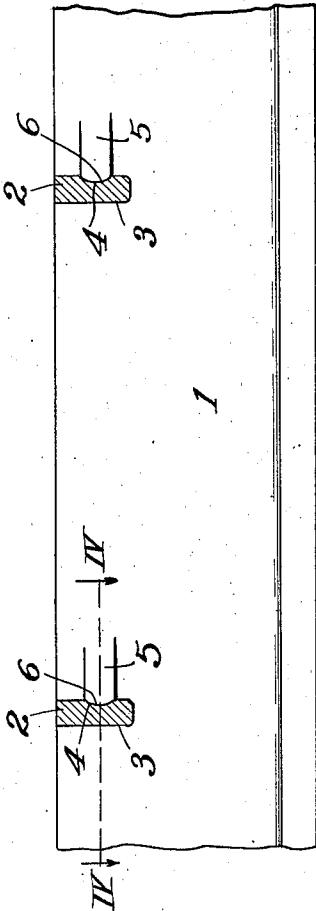


Fig. 2.

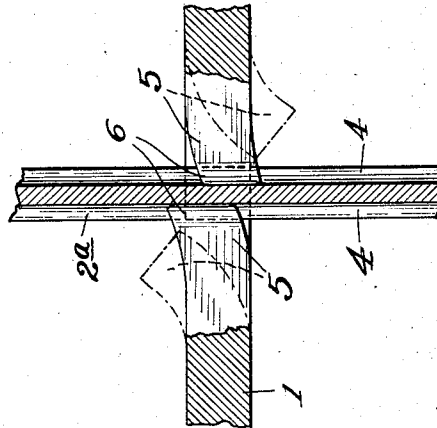


Fig. 6.

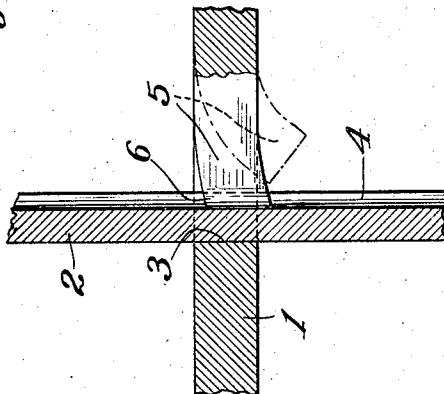


Fig. 4.

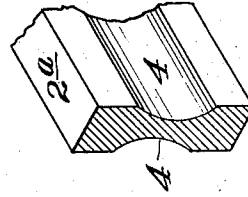


Fig. 7.

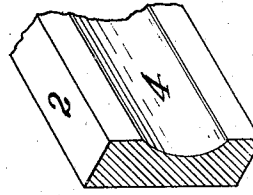


Fig. 5.

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UNITED STATES PATENT OFFICE

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STRUCTURAL GRATING

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Application October 11, 1944, Serial No. 558,181

7 Claims. (Cl. 189—82)

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This invention relates to improvements in structural gratings of the character employed in flooring, sidewalks, etc.

It is a prime object of my invention to provide a grating which may be readily fabricated by means of a practical and economical mechanical interlock. I further have in view the provision of an interlocking construction wherein one of the grating members has its interlocking portion incorporated throughout as by rolling the same into the member during its manufacture.

Additional objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, wherein:

Fig. 1 is a plan view of a structural grating embodying my invention;

Fig. 2 is a cross-section thereof taken on the line II—II of Fig. 1;

Fig. 3 is a cross-section taken on the line III—III of Fig. 1 showing a modification;

Fig. 4 is an enlarged sectional view of the locking means taken on the line IV—IV of Fig. 2;

Fig. 5 is a fragmentary perspective view of one of the grating members of Fig. 4;

Fig. 6 is a view similar to Fig. 4, showing a modification;

Fig. 7 is a view like Fig. 5 of one of the members of Fig. 6;

Fig. 8 is a plan view, showing a further modification; and

Fig. 9 is a sectional view taken on the line IX—IX of Fig. 8.

Referring to the drawings, 1 designates the parallel primary members of the grating, adapted to be connected in intersecting relation with secondary members 2. The primary members 1 preferably have vertical portions, as for example, the legs of the T bars shown, the upper edges of which are provided with upwardly open sockets 3 spaced at regular intervals to receive the secondary members 2 therein. The latter are essentially rectangular bars having a sliding fit in said sockets for assembly of the grating.

At least one side face of each of the members 2 is formed with a continuous longitudinal locking groove 4, preferably of rounded form, which groove may be rolled into the members during manufacture thereof. Coacting with said grooves, the primary members 1 are formed with integral horizontal locking lugs 5 formed in the wall of the sockets 3 opposite said grooves 4 in members 2.

As initially formed, the lugs 5 are punched from the members 1 and curved laterally out-

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wardly from the bodies of the latter as indicated in dotted lines in Fig. 4, said lugs having rounded free terminals 6 adapted to project into and frictionally engage the grooves 4 as the lugs are displaced toward the members 2, as shown in the full line position in the drawings. Hence, upon threading the members 2 in the sockets 3 of members 1, the lugs 5 may be forced or wedged into the grooves 4 to frictionally secure the grating members together against relative longitudinal movement and positively securing the same against relative vertical movement. In the modification of the grating of my invention shown in Figures 1 and 2 the secondary members 2 are of uniform cross section, the frictional engagement of lugs 5 with members 2 being solely relied upon to maintain the primary members in the desired spaced relationship with respect to each other.

For the purpose of providing a positive spacing means and to temporarily secure members 1 and 2, particularly against the force produced as the lugs 5 are jammed into grooves 4, the lower edges of the members 2 may be notched at 7 to straddle the members 1, as shown in Fig. 3, thereby preventing longitudinal movement of the members 2 by the displacement of the lugs. As a further modification, spaced horizontal abutment lugs 8 may be formed in secondary members 2^b rearwardly from the grooves 4 as shown in Figs. 8 and 9, the members 2^b being initially assembled with members 1 so that the lugs 8 space and engage the said members to resist longitudinal movement of the members 2^b as the latter are engaged by lugs 5.

Figs. 6 and 7 illustrate another modification wherein the secondary members 2^a are formed with a longitudinal groove 4 on each side face thereof, and members 1 are provided with oppositely disposed lugs 5 on either side of the sockets 3. In such form, the action of closing or jamming the opposed locking lugs 5 will counteract each other so as not to displace the secondary members.

Thus it will be seen that I have provided a grating structure which may be readily fabricated in a simple and economical manner. While the same is primarily intended for use in concrete filled floor constructions, as shown in Fig. 3, obviously the same may be employed as an open grating also.

Various changes and modifications are contemplated within the scope of the following claims.

I claim:

1. A structural grating including primary and

secondary members disposed in intersecting relation, the primary members having upwardly open sockets receiving the secondary members therein, said secondary members being formed with a longitudinal continuous locking groove along one side thereof, and said primary members having an integral locking lug formed in a wall of each of said sockets opposite the locking grooves of the secondary members, said lugs having free terminals displaced into frictional engagement with the locking grooves of the secondary members.

2. A structural grating including primary members having upwardly open sockets receiving the secondary members therein, said secondary members being formed with a longitudinal continuous transversely rounded locking groove along one side thereof, and said primary members having a locking lug disposed in the wall of each of said sockets opposite and in the planes of the locking grooves in the secondary members, each of said lugs having a rounded free terminal displaced transversely of the plane of the primary member to which it is attached into frictional engagement with the locking groove of the secondary member which it engages.

3. A structural grating including the primary and secondary members disposed in intersecting relation, the primary members having upwardly open sockets receiving the secondary members therein, said secondary members being of uniform cross section and being formed with a longitudinal continuous locking groove along one side thereof, and said primary members having an integral locking lug formed in a wall of each of said sockets opposite the locking grooves of the secondary members, said lugs having free terminals displaced into frictional engagement with the locking grooves of the secondary members.

4. A structural grating including primary and secondary members disposed in intersecting relation, primary members having upwardly open sockets receiving secondary members therein, the secondary members having means engaging the primary members for spacing the latter, said secondary members being formed with a longitudinal continuous locking groove along one side thereof, and said primary members having an integral locking lug adjacent each of the sockets, each of said lugs having a free terminal displaced transversely of the plane of the primary member to which it is attached into frictional engagement with the locking grooves of the secondary member which it engages.

5. A structural grating including primary and secondary members disposed in intersecting relation, the primary members having upwardly open sockets receiving the secondary members therein, the secondary members being notched at their intersection with the primary members so as to straddle and space the latter, said secondary members being formed with a longitudinal continuous locking groove along one side thereof, and said primary members having an integral locking lug adjacent each of the sockets, each of said lugs having a free terminal displaced transversely of the plane of the primary member to which it is attached into frictional engagement with the locking groove of the secondary member which it engages.

6. A structural grating including primary and secondary members disposed in intersecting relation, the primary members having upwardly open sockets receiving the secondary members therein, the secondary members having abutment lugs projecting from the sides thereof for engaging and thus spacing the primary members, said secondary members being formed with a longitudinal continuous locking groove along one side thereof, and said primary members having an integral locking lug adjacent each of the sockets, each of said lugs having a free terminal displaced transversely of the plane of the primary member to which it is attached into frictional engagement with the locking groove of the secondary member which it engages, the said abutment lugs being positioned to oppose the longitudinal displacement of the secondary members during the movement of the locking lugs by engagement of said abutment lugs of the primary members.

7. A structural grating including primary and secondary members disposed in intersecting relation, the primary members having upwardly open sockets receiving the secondary members therein, the secondary members being of uniform cross section and having longitudinal locking grooves extending continuously along opposite sides thereof, said primary members having oppositely disposed integral locking lugs on either side wall of each of the sockets in the plane of the locking grooves, one lug at each socket being displaced transversely of the plane of the primary member in a direction opposite from that in which the other lug at said socket is displaced, both said lugs having frictional engagement with the grooves in the secondary members.

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