Aug. 27, 1946. H. S. NAGIN 2,406,557

STRUCTURAL MEMBER

Filed June 2, 1943

Fig. 1.

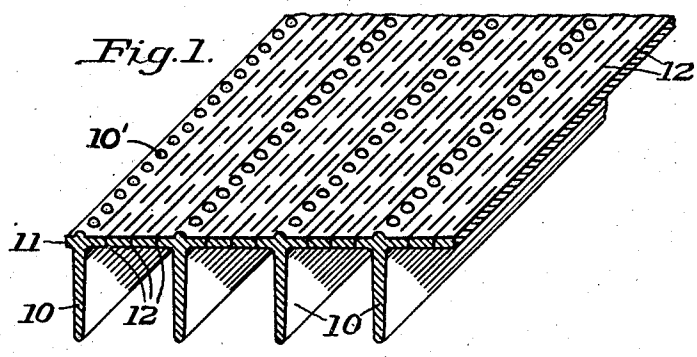


Fig. 2.

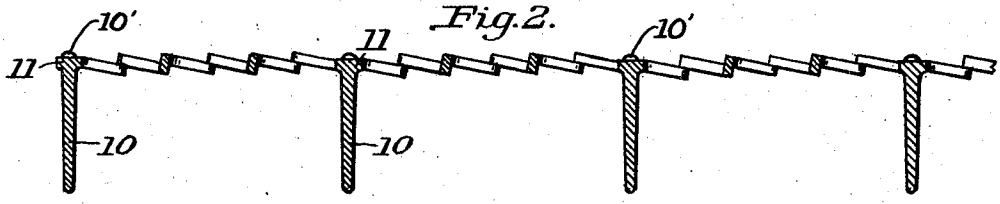


Fig. 2a.



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STRUCTURAL MEMBER

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1 Claim. (Cl. 94—30)

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My invention relates to structural members, and is particularly adapted to gratings and floors. The members are made from a single unitary metal shape.

It is customary to make gratings either by casting, usually but not necessarily in one piece, or by fabricating the grating from rolled metallic members. The latter method commonly includes the use of longitudinal bearing bars secured in spaced parallel relation by spaced cross bars which are joined to the bearing bars by welding or by deformation of parts of the bars. Another type of grating includes spaced longitudinal bearing bars, secured to bent bars, portions of which extend between the bearing bars and usually are fastened thereto by riveting.

My invention provides a structural member or grating which is made from a single member, which may be a rolled metal shape or an extruded metal shape. The rolled shape consists of a platform which is substantially flat and depending spaced apart flanges, narrow and relatively deep. In one form of the grating, the platform between the flanges is slitted and then deformed so as to form spaced apart openings, generally similar to the openings found in expanded metal sheet. In the expanding operation the portions of the platform between the ribs are widened, and consequently the spacing between the ribs increased. The flanges or ribs are of sufficient depth and thickness to economically carry the load to which the member is subjected. When the member or grating is in use, the flanges rest upon or are secured to a suitable support, and the platform is in contact with the traffic.

I also contemplate roughening the top of the platform by forming therein grooves, depression, and projections.

The main object of the invention is to provide a unitary grating which is made from a single metal member formed either by rolling or extrusion.

In the accompanying drawing wherein I have shown, for purposes of illustration only, certain preferred embodiments of my invention;

Figure 1 is a perspective view of a suitable shape, which has been slitted but not expanded,

Figure 2 is a sectional view of the shape shown in Figure 1, after the shape has been expanded to form the completed member, and

Figure 2*a* is a view similar to Figure 2 but showing the top portion of the member as being substantially flat.

The grating shown in sectional view in Figure 2 consists of a series of spaced apart substantially parallel bearer bars or ribs 10 of suitable dimensions which depend from a platform 11 of

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suitable thickness. The platform 11 between the bearer bars has been expanded from the condition shown in Figure 1, and resembles a sheet of expanded metal which extends between the bearer bars 10 and is integral therewith. The portions of the platform immediately overlying the bearer bars have upstanding projections 10'. The section from which the grating is formed is illustrated in Figure 1 which shows the section after it has been rolled or extruded and slits 12 formed therein, but before it has been deformed. The expanding operation and suitable apparatus for performing this operation are well known to those skilled in the art and need not be explained here. The proportioning of the ribs 10, the spacing thereof, the thickness of the platform 11 and the size of the openings are matters of design. Suffice it is to say that the sections can be designed to carry loads of various magnitudes, depending on the conditions of use.

In Figure 2*a* the grating consists of spaced depending bearer bars 10*a* and a connecting platform 11*a*, having opening therein. It is made in the same manner as the grating shown in Figure 2 is made, except that the platform or top portion is substantially flat. This flatness can be obtained in the operation of expanding the shape shown in Figure 1, or by subjecting the deformed portions of the platform of the grating shown in Figure 2 to a flattening operation such as for example may be performed in a press. The section may be formed without the projection 10' shown in Figures 1 and 2.

The grating made according to this invention has the great advantage that it is formed from a single section, so that there are no joints, welded or otherwise, to work loose. Such gratings are much cheaper to make than gratings heretofore known.

While I have described presently preferred embodiments of my invention, it is apparent that the invention can be otherwise embodied and practised within the scope of the following claim.

I claim as my invention:

An integral grated flooring structural panel comprising a rolled or extruded continuous flat platform having integral therewith a plurality of more than two spaced, parallel disposed, solid flanges depending from one surface only of said flat platform and serving as bearer bars, said platform being of uniform thickness between said bearer bars, said platform being slit and expanded between the said bearer bars to form a grating comprising a plurality of bearer bars with expanded metal structure between said bars and integrally connected therewith.

HARRY S. NAGIN.