

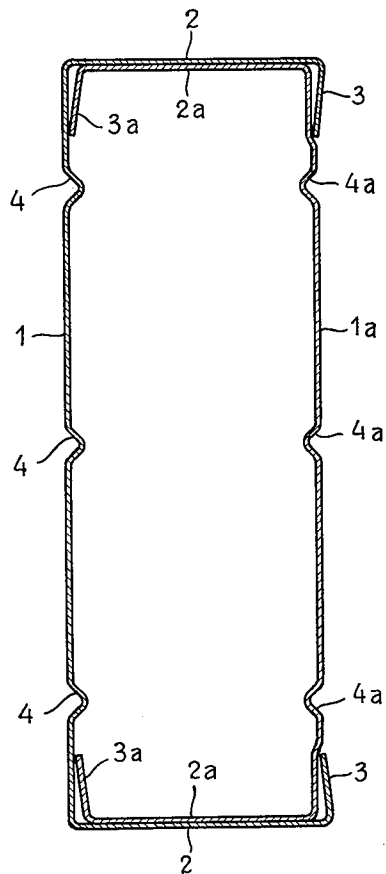
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GIRDER MADE UP OF STRUCTURAL MEMBERS

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GIRDER MADE UP OF STRUCTURAL MEMBERS

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3 Claims. (Cl. 189—37)

This invention relates to a girder made up of two interengaging sheet metal structural members of U-shaped cross-section, each member being formed with bent over end edges, the edges of the outer structural member being at an angle below 90° to the adjacent U-sides so as to be slightly inclined towards the inside of the girder, the edges of the inner member being at an angle exceeding 90° to the adjacent U-sides, hence slightly inclined towards the outside of the girder, the above-mentioned bent over edges of each structural member contacting the web of the U of the other structural members.

Further characteristic features of this invention will be understood from the appended detailed description referring to the accompanying drawing which is a cross-sectional view of an embodiment of the girder.

The girder as shown comprises an outer steel sheet structural member of U-shaped cross-section, 1 denoting the web, 2 the flanges ending by bent over edges 3 at an angle to the flanges 2 smaller than 90°, such as 86°. The edges 3 are therefore slightly inclined towards the inside of the structural members. The web 1 is formed with reinforcing ribs 4.

The inner structural member of the girder is likewise of U-shaped cross-section having a web 1a and two flanges 2a ending by bent over edges 3a at an angle exceeding 90°, such as of 94° to the flanges.

The edges 3a of the inner structural member are therefore slightly inclined towards the outside of the structural member. The two structural members of the girder are caused to interengage by axially fitting them in each other so as to be superposed on each other by their flanges 2, 2a and leaving spaced therebetween the webs 1 and 1a, the bent over edges (3, 3a) of each structural member contacts upon assembly with the web (1a, 1) of the other member.

The slight inclination of the end edges 3, 3a of both members causes the said edges by effect of the forces acting on the regions of the girder at which the flanges 2 and 2a are superposed to tend to draw near to the web (1 or 1a) of the adjacent structural member.

The angle formed by the edges 3 with their respective wing sections 2 on the member 1 should be not less than 80°, whereas the angle formed by the edges 3a with their respective wing sections 2a on the member 1a should not exceed 100°.

In the improved girder the two components are under no load mutually slidable in each other within certain limits. Under load the clamping action by the bent over end edges reduces by an extent growing with load such possibility for mutual sliding.

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The two girder components can be interconnected in any suitable manner, such as by welding, riveting, bolting or otherwise. In the limit case the two components might be free or not mutually linked where the girder is intended to carry limited loads.

The improved girder may be used as a casting mould for casting concrete therein. In this case the two girder components are preferably interconnected to secure the sheet metal members and concrete casting together in such manner as to avoid any axial sliding.

The improved girder may serve not only as a disposable casting mould as a carrying member for pre-stretching the reinforcement for the concrete in the girder in order to manufacture pre-stressed girders. In the latter case this invention affords three important advantages, namely:

(a) The conventional pre-stressing bench or table is dispensed with,

(b) Output is not subject to the performance of the table,

(c) The girders may be vertically piled up during the necessary period for setting of the concrete, thereby enormously reducing the required floor space.

It will be understood that, the principle of the invention being left unaltered, embodiments and constructional details of the girder may be widely varied with respect to the example described and shown without departing from the scope of this invention set forth in the appended claims. More particularly, in order to increase the clamping action by the inclined edges, the following procedures may be adopted:

(a) Enlarging the area of the said edges with respect to the girder height,

(b) Shaping the said edges and portion abutting therewith of the web in order to increase the friction and clamping effect,

(c) Providing a superficial finish adapted to provide highest sliding friction.

What I claim is:

1. Girder comprising two interengaging sheet metal structural members of U-shaped cross-section, wherein each structural member is formed with bent over end edges, the edges of the outer structural member being at an angle below 90° to the adjacent flanges of the U so as to be slightly inclined towards the inside of the girder, the edges of the inner structural member being at an angle exceeding 90° to the adjacent flanges of the U, so as to be slightly inclined towards the outside; the said bent over edges of each structural member contacting with the web of the other U shape.

2. Girder as claimed in claim 1, wherein the angle between the bent over edges of the outer member and the flanges of the U shape ranges between 80 and 89°.

3. Girder as claimed in claim 1, wherein the angle between the bent over edges of the inner structural member and the flanges of the U shape ranges between 91 and 100°.

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