(No Model.)

W. C. WOOD.

CHAIR FOR GIRDER RAILS.

No. 459,893. Patented Sept. 22, 1891.

Fig. 1.

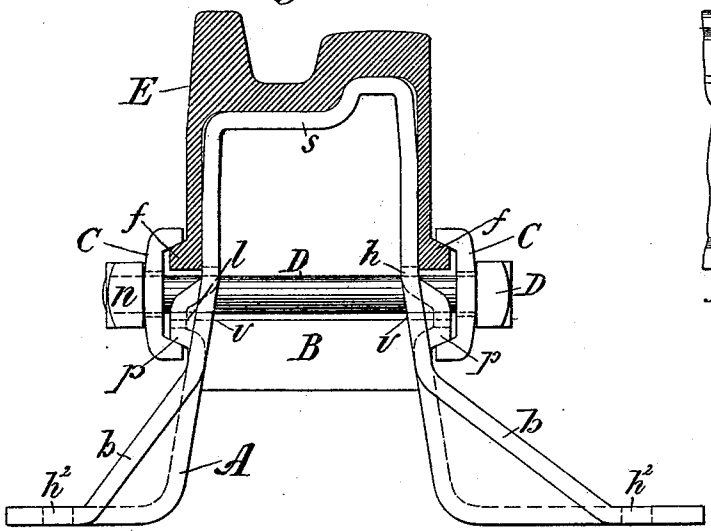


Fig. 2.

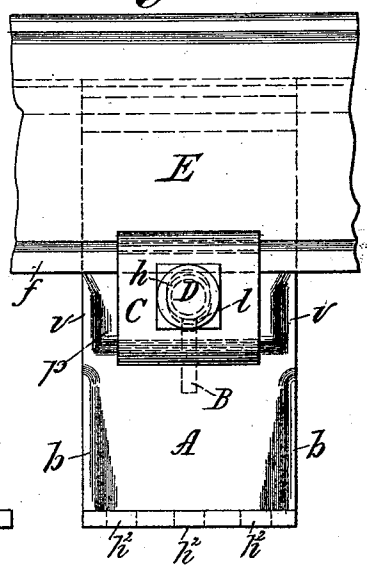


Fig. 3.

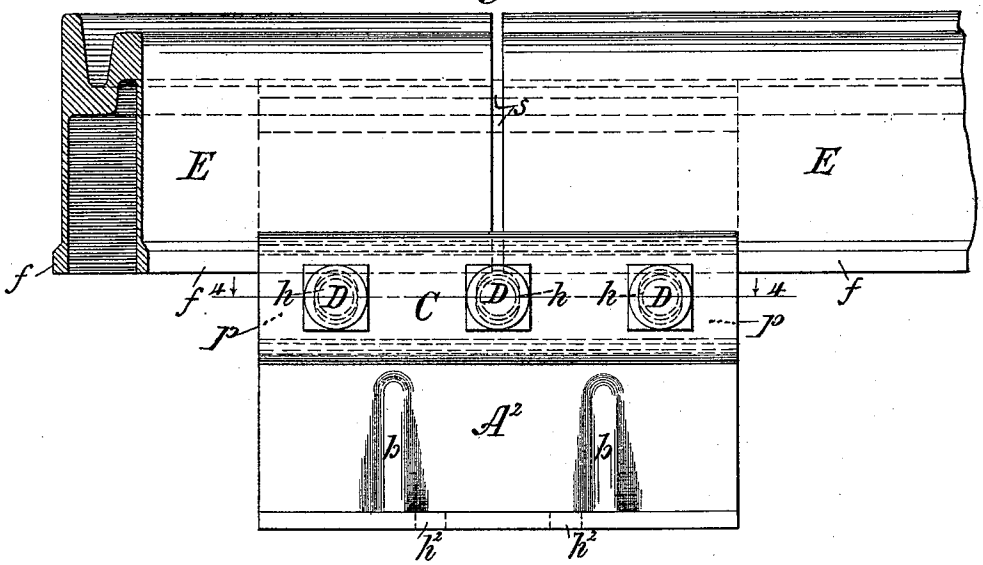
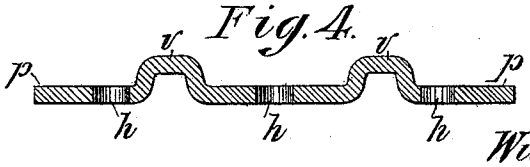


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM CLARK WOOD, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE LEWIS & FOWLER GIRDER RAIL COMPANY, OF SAME PLACE.

CHAIR FOR GIRDER-RAILS.

SPECIFICATION forming part of Letters Patent No. 459,893, dated September 22, 1891.

Application filed December 26, 1890. Serial No. 375,819. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLARK WOOD, a citizen of the United States, and a resident of Brooklyn, in the State of New York, have invented a new and useful Improvement in Chairs for Girder-Rails, of which the following is a specification.

This invention is additional to my series of inventions relating to girder-rails and their fastenings, and more particularly to an improvement in chairs for girder-rails set forth in my specification forming part of an application for patent filed December 18, 1890, Serial No. 375,142.

The present invention consists in an improved wrought chair primarily designed for use in connection with my improved box girder-rails patented December 23, 1890, but capable of use in modified forms in connection with other box girder-rails, and also with T-rails or rails having a like form of base, as set forth in said previous specification.

The objects of this invention are, first, to render a given weight of chair stronger in a vertical direction, and thus better adapted to sustain the crushing strains to which it is subjected by heavy trucks, steam-rollers, and the like crossing the track, and by the application of excessive force in clamping down the rails; secondly, to provide for bracing or staying the chairs by means of internal struts held in place by the resiliency of the chair-iron itself, and, thirdly, to so attach such struts without supplemental perforations in the chairs, and so that the struts are located immediately below the respective clamping-bolts, and thus as nearly as possible in the direct line of the horizontal crushing strain which they are to resist.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings represents an elevation of a single chair constructed according to this invention and a cross-section of a superposed box girder-rail of the improved construction above referred to, showing, also a pair of clamps and a clamping-bolt as combined therewith. Fig. 2 is a side view of the same. Fig. 3 is a side view of a double or joint chair and of the adjoining ends of two of said improved box girder-rails supported thereon and fastened in like manner; and Fig. 4 represents a horizontal section through one of the improved beveled projections of said double chair on the line 4 4, Fig. 3.

Like letters of reference indicate corresponding parts in the several figures.

In common with my wrought chairs set forth in said previous specification, forming part of application No. 375,142, each of these improved chairs is composed of a chair proper or chair-iron A or A^2 in one piece, adapted to be produced from the flat plate by punching and swaging, and a strut or struts B, adapted to be stamped from scraps of the same metal, and is adapted to coact with a pair of clamps C and with one or more clamping-bolts D, having screw-nuts *n* or the like to fasten down the superposed girder rail or rails E, or in the case of double or joint chairs, Figs. 3 and 4, to both fasten down the adjoining ends of two rails and to effectively support the same at the joint. Each chair is also constructed with a suitable seat portion *s* and with hollow lateral projections *p*, beveled at bottom and located immediately below the flanges *f* of the superposed rail, said beveled projections and rail-flanges being adapted to engage with matching beveled flanges on the clamps C, and each chair is also provided with side holes *h*, above the bevels of said lateral projections *p*, to receive the bolts D, and also with hollow lateral braces *b*, merging into upwardly and inwardly inclined side portions, which latter are provided with base-holes h^2, which are or may be adapted to receive spikes, bolts, or rivets for attaching the chairs to cross-ties or the like. Each of the improved chairs is furthermore constructed with vertical or substantially vertical portions *v*. (Shown in horizontal cross-section or plan in Fig. 4 as they appear in the three-bolt double chair represented by Figs. 3 and 4.) These vertical portions *v* contract or divide the beveled projections *p*, and may be widened in the direction of the length of the rail, so as to confine said beveled projections to a length or lengths sufficient for their effective coaction with the clamps C. The office of said vertical portions *v* is to render the vertical walls continuous to a sufficient extent to resist the compression of the chair vertically

either by heavy trucks or the like crossing the track or by excessive strain exerted through the clamps C in tightening the screw-nuts of the bolt or bolts D. Without this provision the chair must be made much heavier, in order to possess the requisite maximum resistance to vertical compression in its hollow lateral projections *p*, which, being weakened by the side holes *h* and bent out of the vertical plane a considerable distance, are not well adapted to resist such strains. In the improved chairs said vertical portions are or may be adapted to sustain so much of the vertical strain as to preclude breaking down the chair or compressing the lateral projections. The struts B are also of improved construction, being made with spurs or lugs *l* at their respective ends at top adapted to fit into the side holes *h* at bottom or beneath the bolts D, as clearly shown in dotted lines in Figs. 1 and 2. The chair-iron A is so made that its sides are normally at the correct distance apart. After it is thus made it is sprung open to a sufficient extent to admit the strut or struts, and then allowed to contract again, and its own resiliency or tension keeps the struts in place. The struts are thus very conveniently and economically attached, and are at the same time located vertically immediately below the respective bolts, as shown in dotted lines in Fig. 2.

The clamps C and bolts D are or may be of the same description as those set forth in said previous specification. The improved rails E may have tops of any approved section, and the improved chairs may be adapted, in the manner set forth in said previous specification, to support other box-rails or even T-rails and rails having a like form of base.

The improved chairs may also be modified as to the number and location of the hollow braces *b* and as to the number and location of said vertical portions *v*, as well as to their length in the direction of the length of the rails and the number of their side holes *h*, which determines the number of struts and bolts and the number and location of the bolt-holes in the clamps C, as illustrated by the drawings. The improved struts may likewise be attached in the manner aforesaid, so as to be held in place by the resiliency or tension of the chair-iron without locating them directly below the respective bolts, by providing separate side holes in the sides of the chair-iron to accommodate the lugs *l*, and other like modifications will suggest themselves to those skilled in the art.

Having thus described the said improvement, I claim as my invention and desire to patent under this specification—

1. An improved wrought chair for girder-rails, comprising a hollow chair-iron adapted to be formed in one piece from plate iron or the like and having a suitable seat portion at top, hollow lateral projections beveled at bottom on its respective sides, side holes above the bevels of said lateral projections, and vertical or substantially vertical portions extending continuously from below said projections to above the same and integral with the remainder of the chair-iron, substantially as hereinbefore specified.

2. An improved wrought chair for girder-rails, composed of a chair-iron adapted to be formed in one piece from plate-iron or the like, and having a suitable seat portion at top, hollow lateral projections beveled at bottom on its respective sides, side holes adapted to receive spurs or lugs, and one or more struts provided with such spurs or lugs at top on the respective ends of each, projecting into said side holes and held in place by the resiliency or tension of the chair-iron, substantially as hereinbefore specified.

3. In combination with a pair of clamps having wedging-flanges at top and bottom, one or more through clamping-bolts, and a rail or rails having laterally-projecting flanges, which engage with the upper flanges of said clamps, an improved wrought chair composed of a chair-iron having a suitable seat portion at top, hollow lateral projections beveled at bottom on its respective sides, and side holes above the bevels of said lateral projections, and one or more struts having end spurs or lugs at top, said bolts occupying the central and upper portions of said side holes and said lugs their lower portions, whereby the struts are located immediately below the respective bolts and are held in place by the resiliency or tension of the chair without other fastenings, substantially as hereinbefore specified.

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