

(No Model.)

3 Sheets—Sheet 1.

W. C. WOOD.

GIRDER RAIL TRACK FOR STREET RAILWAYS.

No. 460,927.

Patented Oct. 6, 1891.

Fig. 1.

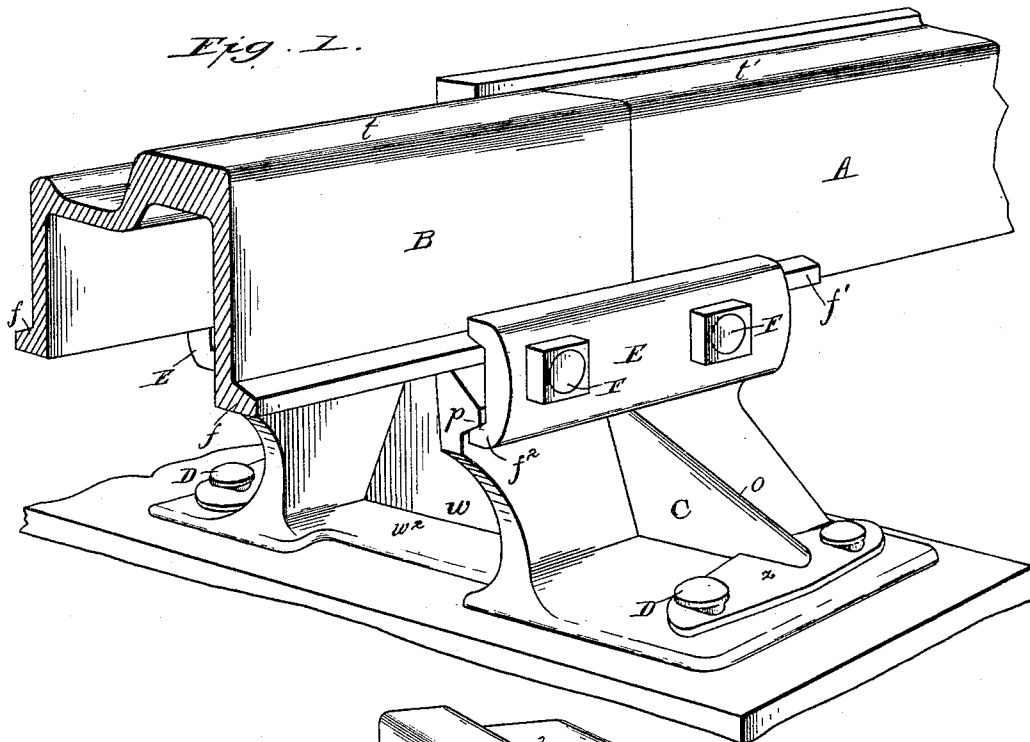
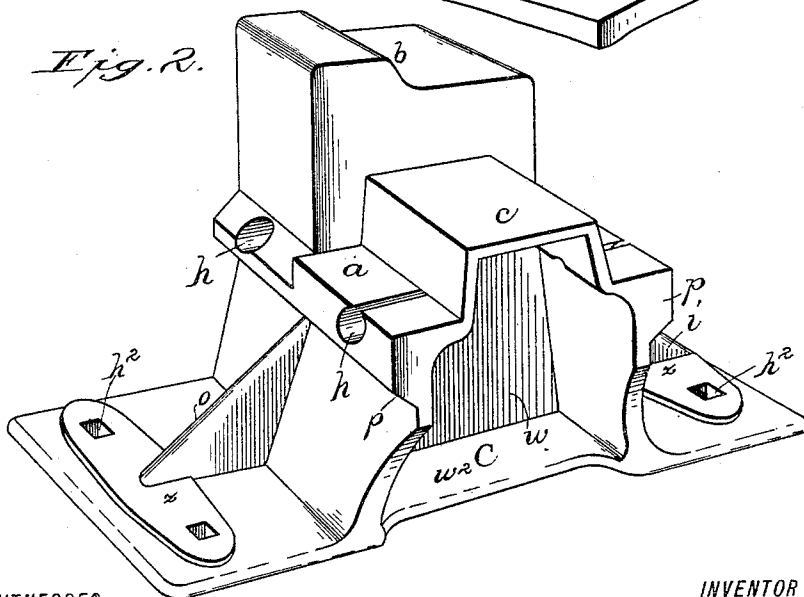


Fig. 2.



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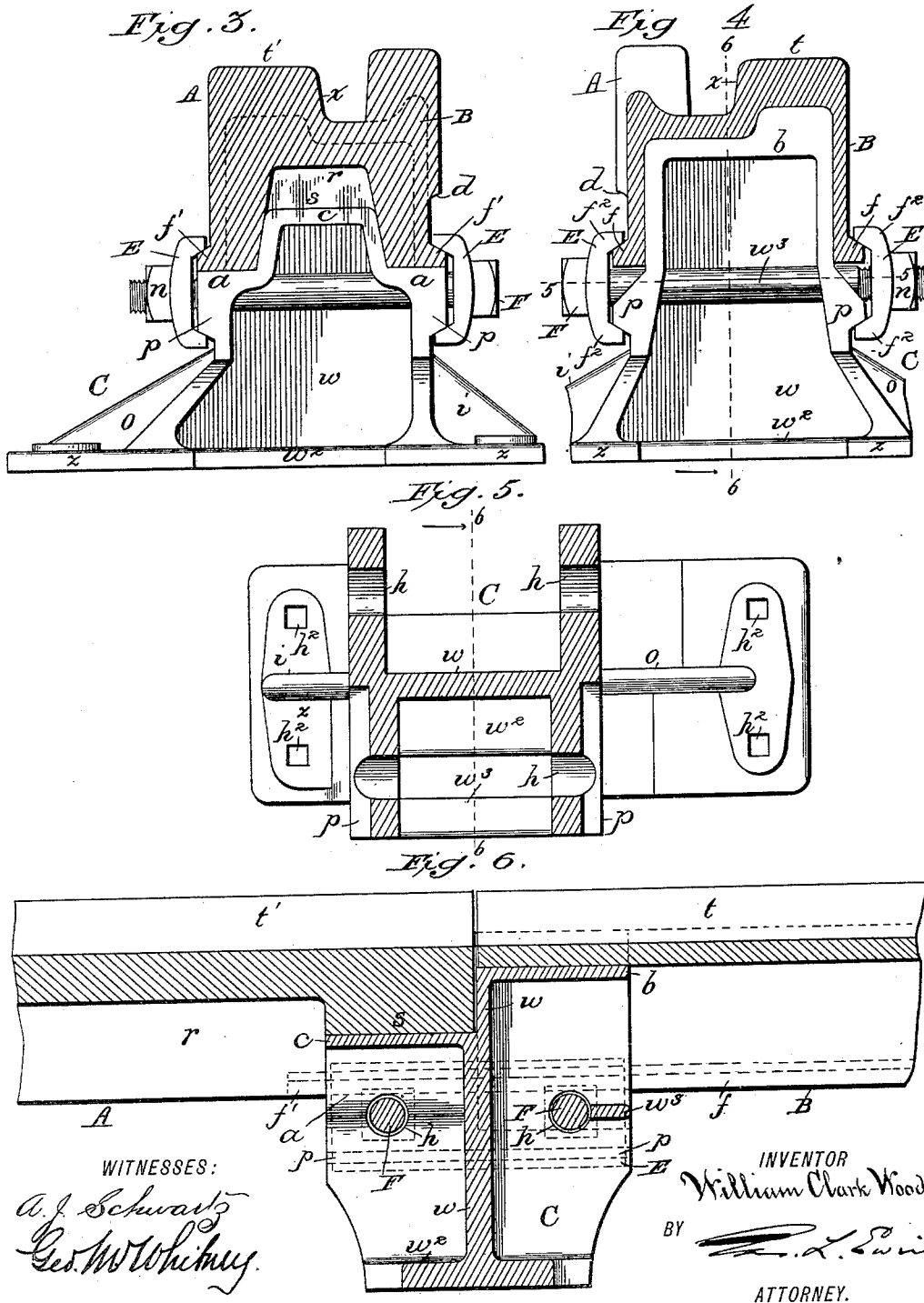
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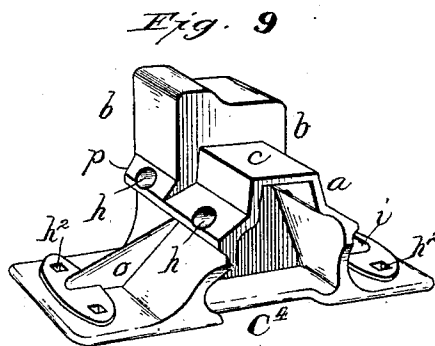
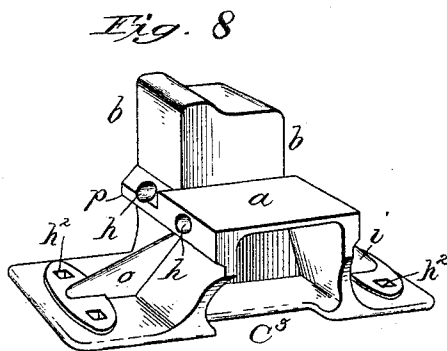
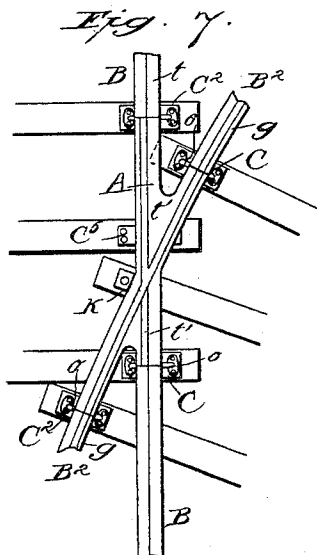
3 Sheets—Sheet 3.

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GIRDER-RAIL TRACK FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 460,927, dated October 6, 1891. *

Application filed February 27, 1891. Serial No. 383,118. (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
5 invented a new and useful Improvement in Girder-Rail Tracks for Street-Railways, of which the following is a specification.

This invention relates to the construction of street-railway tracks in which "box" girder-
10 rails are to be used; and it consists in certain novel combinations of peculiarly-constructed parts and in certain novel parts so combined, as hereinafter set forth and claimed.

15 The objects of the invention are, first, to provide for supporting and fastening down the various track-castings required at switches and crossings by means of chairs and clamp-
fastenings similar to those employed for fast-
20 ening down the box-rails, and so that the castings may be taken up and relaid without disturbing the rails; secondly, to support and fasten down the adjoining ends of such castings and of the box-rails with which the re-
25 mainder of the track is laid by means of chairs common to both; thirdly, to provide cast-iron chairs for this purpose of a novel construction adapted to be readily molded so as to possess the requisite strength without
30 surplus metal, and, fourthly, to provide railways with track-castings adapted to be so supported and fastened down.

Three sheets of drawings accompany this specification as part thereof.

35 Figure 1 of the drawings is a perspective view of a "step-chair" and the adjoining ends of a track-casting and a box-rail supported thereon, illustrating this invention. Fig. 2 is a perspective view of the chair alone. Figs.
40 3 and 4 are end views of the parts shown in Fig. 1, with cross-sections of the track-casting and rail, respectively, in the foreground. Fig. 5 is a plan view of that portion of the chair below the plane of section indicated at 5
45 5 in Fig. 4. Fig. 6 represents a vertical section through all on the line 6 6, Figs. 4 and 5. Fig. 7 is a small scale plan view of a portion of improved track, and Figs. 8 and 9 are
50 small scale perspective views of modified step-chairs.

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

The track-casting A may be a frog, as in Fig. 7, or a tongue-switch or its mate, or any like cast-rail or track-casting that is provided
55 with one or more continuations *t'* of the tread *t* of the wrought rail or rails with which the adjoining portions of the track are laid. The box-rail B may have a top of any approved
60 section in connection with depending webs at both edges having lateral flanges *f* beveled on top. The particular rail represented in Figs. 1, 3, 4, and 6, and at B in Fig. 7 is one
of my improved box-girder rails of the section known as "section B" and of the pecu-
65 liar construction set forth in a previous specification, forming part of United States Patent No. 443,470, dated December 23, 1890. The rail represented at B² in Fig. 7 is a curve-rail
70 (section C) of the same construction, having a high guard *g* at the inside of its tread. Other box-rails having such flanges on their webs may be laid in like manner. Said track-casting A is constructed with an open-ended
75 longitudinal recess *r*, Figs. 3 and 6, in its bottom, including relatively shallow saddle portions *s* in line with the interior of the box-rail—that is to say, the space between the two webs of the rail—but narrower than such rail
80 interior and much shallower, so as to leave the necessary thickness of metal in the ends of substantially the same external dimensions as adjoining rail ends. (Compare Figs. 3 and 4.) The track-casting is further constructed
85 with lateral flanges *f'* at bottom coinciding with those of the clamped rail and beveled on top like the latter. In the drawings a lateral depression *d* in one side aids in forming an
end portion of the same width as the web portion of the clamped rail and adapted to align
90 therewith as to the gage-shoulder *x* of the tread on each. As to height, the several track-castings are made uniform with the rails.

The double chair Figs. 2 and 5 (shown at C in Figs. 1, 3, 4, 6, and 7) has a stepped top
95 forming two seats *a b* in line with each other, which are fitted, respectively, to the bottom of the track-casting A, including in this example its said saddle portion *s* and to the interior of the clamped box-rail B or B². Ow-
100

ing to the necessarily-contracted dimensions of the aligning seat, projection c , fitted to said saddle portion s , I prefer to make the lateral edges of the seat a substantially as shown, so as to support the track-casting from beneath at its outer edges. Any tilting of the casting or undue strain on the clamps is thus prevented. The lower limits of the respective seats are at one height, and immediately below this limit the chair is provided with transverse bolt-holes h and at or immediately below these with lateral projections p , beveled at bottom and matching said beveled flanges $f f'$ on the track-casting and rail in common. Below said lateral projections the upright portion of the chair may be merged into or connected with its horizontal base in any approved manner. Central lateral braces $i o$, having inclined upper edges and conformed, respectively, to the requirements for the inner and outer sides of the track, preferably connect said upright portion with said horizontal base, being so located in common with a vertical transverse wall w within the chair which extends from at or near its bottom to the top of the highest seat b and forms the riser of the step in the top of the chair, as seen in Fig. 6. A strong and light double chair is thus readily cast with hollow ends, as shown. Horizontal webs $w^2 w^3$ have been added, but may be omitted or modified without affecting this part of the invention. The lateral base projections z are also preferably provided with square spike-holes h^2 , fitted to my improved spikes D , Fig. 1, patented February 24, 1891, such spikes having elevated button-heads, so as to facilitate driving and drawing them. As these spikes form no part of the present invention, further description of them here is omitted.

After the chair C is spiked down, and the adjoining ends of the rail B or B^2 and track-casting A are seated thereon, a pair of rigid wedging-clamps E are applied to the lateral flanges $f f'$ and projections p , each clamp being constructed with longitudinal lips or flanges f^2 , beveled internally to match the bevel of said lateral flanges and projections, and with bolt-holes matching said bolt-holes h in the chair. These clamps are the product of a novel process of manufacture, which is the subject of another specification forming part of my application for United States Patent, filed November 6, 1890, Serial No. 370,510. Fastening-bolts F , with screw-nuts n , for which keys may be substituted, complete the structure. When these are tightened, the track-casting A and rail B or B^2 are drawn down upon the chair C , the elastic webs of the rail being sprung inward against the sides of the seat b of the chair without impairing their elasticity, which, thereupon, acting through the coacting beveled flanges $f f^2$ and through the clamps E , keeps the nuts or keys of both bolts tight. (See Fig. 4.) Other advantages of such rails and fastening devices are set forth in my said rail specifica-

tion forming part of Patent No. 443,470, and in my specification forming part of a previous application for Patent filed November 1, 1889, Serial No. 328,906, (Patent No. 450,594, dated April 14, 1891,) in which said clamping devices and their combination with such rails and chairs are more fully set forth and claimed. The step-chair represented at C^2 in Fig. 7 is of the same construction as said chair C , but modified for location at the right side of the track and the far end of the track-casting, or at the near end of the track-casting and the left side of the track, as determined by the necessary position of its outer brace o and the succession of its seats for the track-casting and the rail, respectively, as compared with those of said chair C . The modified step-chairs $C^3 C^4$ (represented, respectively, by Figs. 8 and 9) are each identical with said chair C , except as to the seat a for the track-casting. In said chair C^3 this seat a is flat from side to side, and in said chair C^4 its lateral edges are beveled downwardly so as to cause the track-casting to be supported on the seat projection c , in the same manner as the box-rail is supported on its seat b . Both of these patterns of chair would be cast right and left like the chairs $C C^2$.

Details which have not been specified may be of any approved description, and other like modifications, including the construction of a single chair for track-castings on the same principle, will suggest themselves to those skilled in the art.

The intermediate chair represented at C^5 and the knee represented at K in Fig. 7 may be of any approved description and form no part of this invention.

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

1. The combination, in a street-railway track, of a track-casting constructed with an open-ended longitudinal recess in its bottom, including a relatively-shallow saddle portion, and with lateral flanges beveled on top on its respective sides, a chair therefor having a seat projection at top fitted to said saddle-portion and lateral projections beveled at bottom matching said beveled flanges, a pair of clamps having internally-beveled flanges matching said lateral flanges and projections, and a bolt or bolts passing through said chair and clamps below the bottom of the track-casting, substantially as hereinbefore specified.

2. The combination, in a street-railway track, of a track-casting having an end provided with lateral flanges beveled on top, a box girder-rail having like beveled flanges on its depending webs, a double chair having at top a pair of seats in line with each other, fitted, respectively, to the bottom of the track-casting and to the interior of the box-rail, and having lateral projections beveled at bottom matching said lateral flanges of the track-casting and rail in common, clamps

having internally-beveled flanges matching said lateral flanges and projections, and bolts passing through said chair and clamps below the bottom of said track-casting and below the lower edges of the rail-webs, substantially as hereinbefore specified.

3. A hollow-ended cast chair for supporting the adjoining ends of a track-casting and a box girder-rail having its upper surface stepped and crowned with two seats of different heights in line with each other and having a rigid transverse wall extending from at or near its bottom to the top of the higher seat and forming at top the riser of the step

in the chair, substantially as hereinbefore specified.

4. A track-casting, as hereinbefore specified, constructed with an open-ended longitudinal recess in its bottom, including relatively-shallow saddle portions, and with lateral flanges beveled on top on its respective sides at bottom, substantially as shown and described.

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Witnesses:

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CHAS. HEALY.