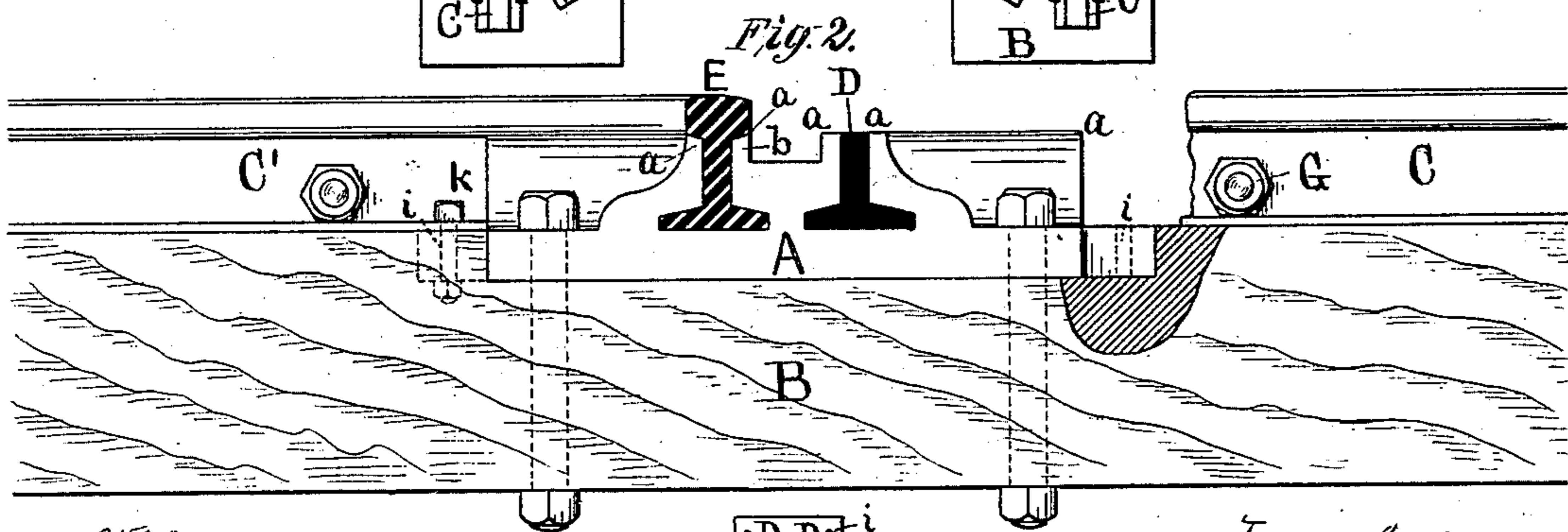
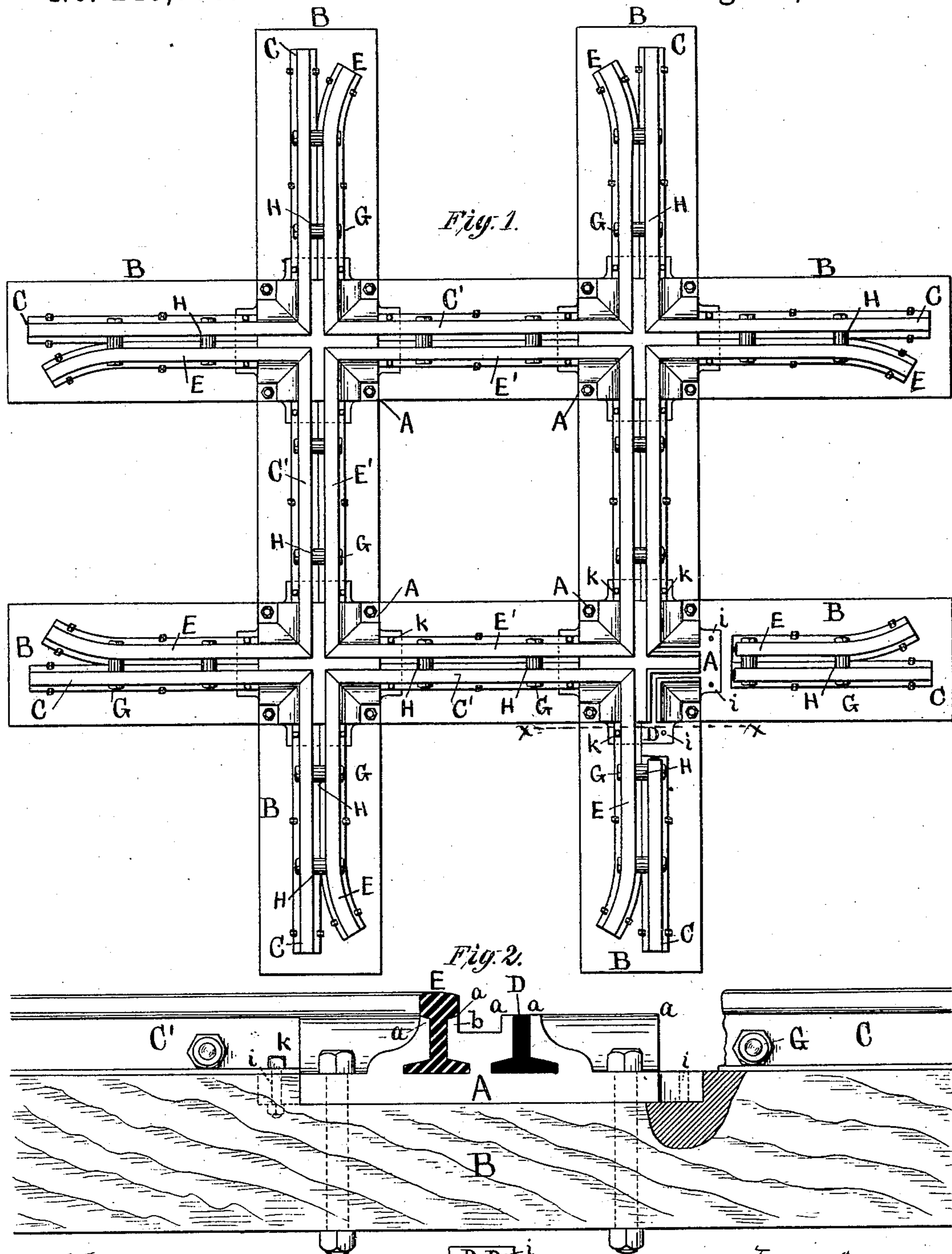


(No Model.)

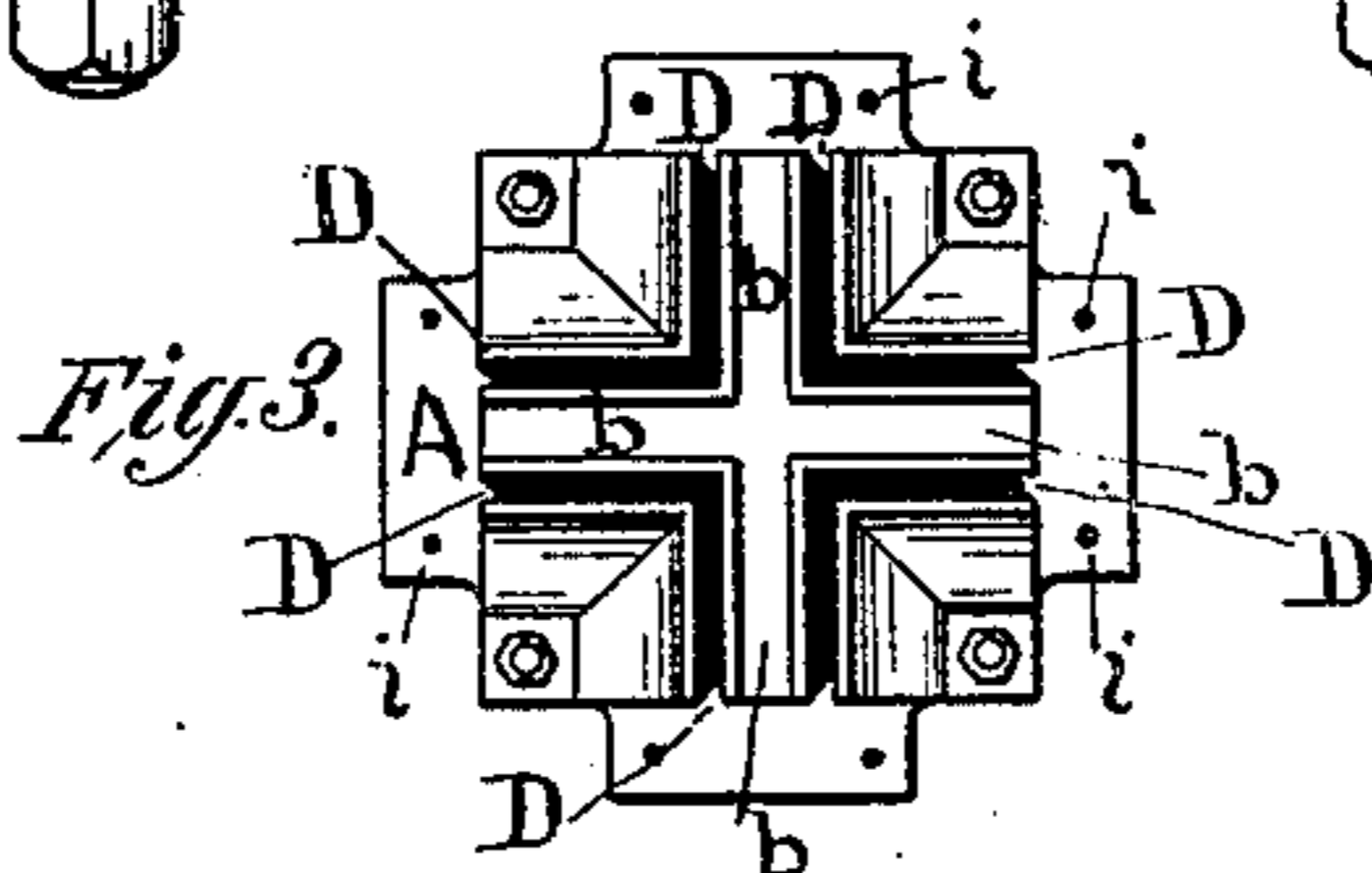
P. J. COCHRANE.
RAILWAY CROSSING.

No. 245,790.

Patented Aug. 16, 1881.



Witnesses;
C. C. Perkins
J. H. Ker, Jr.



Inventor;
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By David A. Burr
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UNITED STATES PATENT OFFICE.

PETER J. COCHRANE, OF CHARLESTON, SOUTH CAROLINA.

RAILWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 245,790, dated August 16, 1881.

Application filed June 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, PETER JAMES COCHRANE, a resident of the city and county of Charleston, in the State of South Carolina, have invented certain new and useful Improvements in Railway-Crossings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improved railway-crossing, and has for its object the construction of railway-crossings at any desired angle in the strongest manner and with the fewest possible joints, it having been demonstrated in practice that under constant traffic a multiplicity of joints will work, chafe, and become loose, requiring continual repairs and great watchfulness, and thus constituting a source of heavy expense and annoyance to the railway company.

My invention overcomes these objections, and is advantageous in that it is free from any joints except at the points of intersection of the rails, and the main and guard rails are both firmly held and solidly supported so as to be measurably immovable.

It consists in the use of chairs formed of steel castings of a novel pattern, in combination with the foundation-timbers for the crossing, to confine the intersecting ends of the rails; and of bolts and stays for securing the guard and main rails to each other and to said castings.

In the accompanying drawings, Figure 1 is a plan view of the crossing, showing three of the rails entering the casting or chair at the lower right-hand corner of the view, broken away. Fig. 2 is a detached transverse section, upon an enlarged scale, in the line *xx* of Fig. 1; and Fig. 3, a plan of one of the chairs or castings for the crossing detached.

The crossing is constructed of four chairs, *A A*, (see Fig. 3,) which are secured at the intersection of four heavy ties or bed-timbers, *B B*, (see Fig. 1,) to receive the ends of the main-line rails *C C* and intersection-rails *C' C'*, and of counterpart guard-rails *E* and *E'*, the line-rails and guard-rails being firmly

united and bound together by transverse bolts *G G* passing through thimbles *H H* inserted between the rails to stay them.

The chairs *A A* consist of castings, preferably of steel, cored out with double intersecting cavities or recesses *D D*, each corresponding in cross-section with the base and web of a rail. (See Figs. 2 and 3.) The depth of each recess corresponds to the height of the rail to the under side of its head, so that when the rail is inserted endwise into the recess the top edge of the chair will fully support the head of the rail on each side, as shown at *a a* in Fig. 2. These double cavities, adapted to receive side by side the ends of the main and guard rails, extend parallel with each other from each side of the chair to the center thereof, where they intersect at the angle required in the crossing. (See Fig. 3.) The top of the chair between the rails intersecting thereon is centrally grooved or recessed sufficiently (see at *b*, Figs. 2 and 3) to permit a free passage of the flanges of the wheels over the rails at their intersection without striking the chair. The four outer sides of the chair, embracing the outer sides of the web of the rails, are sloped off to the base of the chair. This base is extended to form a heavy flat flange, projecting at each corner to receive a bolt, and at each side to afford wider support for the base of the rail. The central flanges, extending out under the rails, project beyond the upright supporting-pieces which inclose the sides of the rails, and bolt-holes *i i* are pierced therein to permit the rails to be bolted to the chair, as shown in Figs. 1 and 2 of the drawings.

The timbers *B B* for the crossing are made long enough to support the guard-rails, and the chairs *A*, constructed as described, are firmly bolted down to the timbers at their intersections, the ends of the intermediate connecting-rails, *C' E'*, being first slipped longitudinally into the cavities on the inner sides of the chairs. The ends of the main rails *C* and guard-rails *E* are also slipped in from the outer sides of the chairs, the inner ends of the several rails being so beveled off or mitered as to form a close joint with each other at their intersection in the chairs. (See Fig. 1.) The rails, after being inserted into the chair, are

bolted thereto, to prevent them from slipping out therefrom, by bolts passing through the flanges of the rail and the projecting flanges of the chair, (see at *k k*, Fig. 1.) The guard
5 and main rails are also bolted together by the transverse bolts *G G* passing through tubular stays or thimbles *H H*, made preferably of wrought iron, and inserted between the rails. The guard and main rails *E C* and the chairs
10 *A A* are thus so firmly bound and united together and secured to the foundation-timbers *B B* as to constitute a firm, solid structure without other joints than those at the intersection of the rails, while all lateral pressure is
15 transferred to the solid chairs, and the rails thereby wholly relieved from strain.

The main rails are preferably used full length for the reason that the longer the rail is extended and spiked out on the ties the less liable it is to work loose and rattle. The guard-
20 rails are secured to the main rails each by two bolts and thimbles, and admit of ready removal for repairs. By removing the bolts and drawing the spikes on the ties the main
25 rails are also readily removed.

Crossings of this description can be made at any angle desired by making the castings of the chairs with the angle required.

What I claim as new, and desire to secure by
30 Letters Patent, is—

1. The chair *A* for a railway-crossing; provided with double parallel intersecting cavities *D D*, adapted to receive, embrace, and support both sides of the base and web of rails inserted to intersect therein, substantially in
35 the manner and for the purpose herein set forth.

2. The combination and connection of a guard-rail, *E*, with the end of a main rail, *C*, and with transverse bolts *G*, tubular stays *H*,
40 and a chair having double cavities intersecting therein, all substantially as and for the purpose herein set forth.

3. A railway-crossing constructed of the double chairs *A A*, the inner double connecting-rails, *C' E'*, and the outer main and guard
45 rails, *C* and *E*, coupled together by transverse bolts and stays, and intersecting respectively said inner rails, substantially in the manner and for the purpose herein set forth.
50

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

P. J. COCHRANE.

Witnesses:

H. J. DUNNING,
J. M. SMITH.