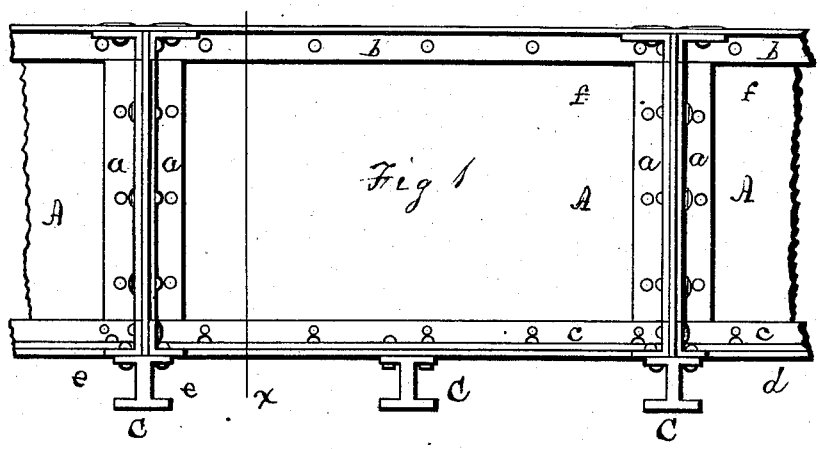
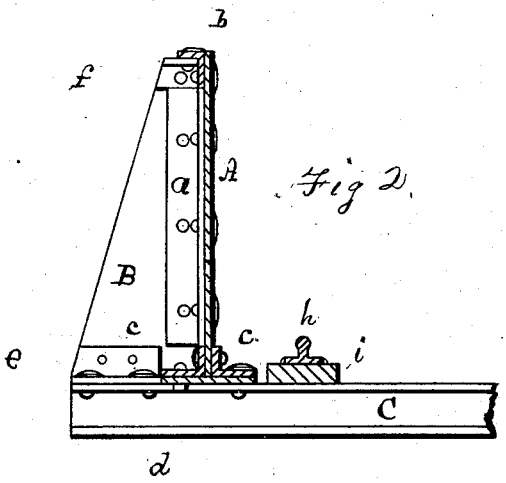
J. M. HANNAHS.

Elevated Railway.

No. 163,188. Patented May 11, 1875.





Witnesses
E. A. West
Q. W. Bond.

James M Hannahs
Inventor

UNITED STATES PATENT OFFICE.

JAMES M. HANNAHS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO LOUIS WAHL AND CHRISTIAN WAHL, OF SAME PLACE.

IMPROVEMENT IN ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. **163,188**, dated May 11, 1875; application filed December 28, 1874.

CASE A.

To all whom it may concern:

Be it known that I, JAMES M. HANNAHS, of the city of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Girders for Elevated Railways, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a vertical section on line *x* of Fig. 1.

The object of this invention is to provide substantial and suitable girders to be placed along the sides of the track of an elevated railway, which, while they support the track as usual, will be, from their construction, especially adapted to serve as guards to prevent accidents.

In the drawings, A represents pieces of boiler-iron about thirty-four inches wide, and of any suitable length. The ends of these pieces are brought together, and to the top I secure, by rivets, strips of angle-iron *b*, running the whole length of the girder. To the bottom of the plates A, both on the inside and outside, I also rivet pieces of angle-iron *c*, and for greater strength a strip, *d*, of boiler-iron may be riveted to the under side of the angle-irons *c*, if necessary. At suitable intervals, and especially where the ends of the plates A come together, I place braces B, which are secured to the plates A by means of angle-irons *a*, riveted both to the braces B and to the plate A. For greater strength I also secure the top of the braces B to the angle-irons *b* by means of irons *f f*, and at the bottom I secure these braces to one of the ties C by means of irons *e e*.

The ties or cross-bars, upon which the rails are supported, may be secured to the under side of the girders in the usual manner, and at the points where the braces are placed the ties are of sufficient length to allow the braces B to be secured thereto at their lower ends.

By using a sufficient number of braces B on the outside of the girder it will not be necessary to use any on the inside.

I countersink the holes for all the rivets, except those for the lower angle-irons, and also partially flatten the rivet heads or ends upon the inside and top of the girder, except those used in the lower angle-irons. I thus provide a continuous girder, substantially smooth upon its inside and top through its whole length, and having no braces or projecting bolt-heads upon the inside or top to tear and seriously injure the cars in case they should be thrown from the track. If the cars should be thrown from a track using the present style of girder, having braces and other projections upon the inside, the danger of breaking down the girder, so as to permit the cars to fall from the railway, would be much greater than if girders constructed as described were used.

The rails are laid on longitudinal stringers *i*, secured to the ties in the usual manner.

What I claim as new, and desire to secure by Letters Patent, is as follows:

Girders for elevated railways, consisting of the iron plates A and outside bars or brackets B, the several parts being strengthened and connected together by angle-irons, as described, and constructed with a practically-smooth surface upon the inside, substantially as and for the purposes specified.

JAMES M. HANNAHS.

Witnesses:

E. A. WEST,

O. W. BOND.