

(No Model.)

G. H. PEGRAM.

BRIDGE FOR ELEVATED RAILWAYS, &c.

No. 359,467.

Patented Mar. 15, 1887.

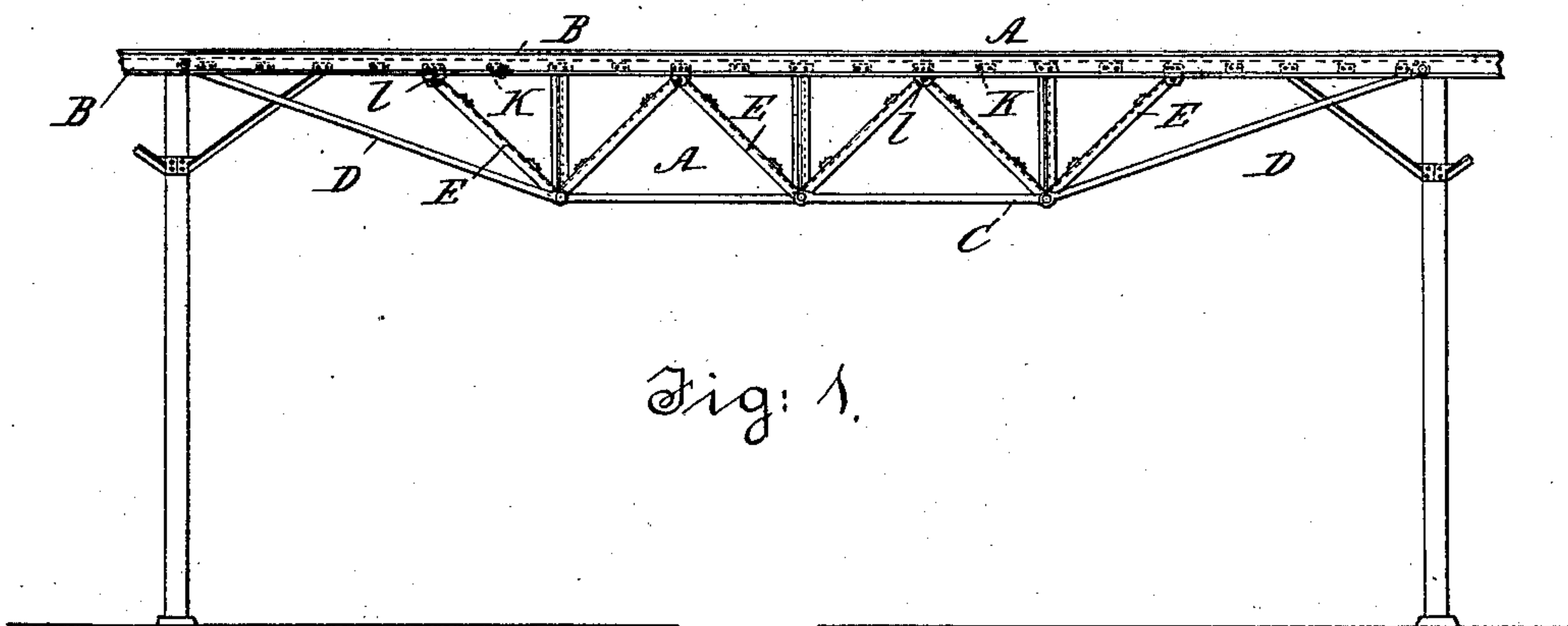


Fig: 1.

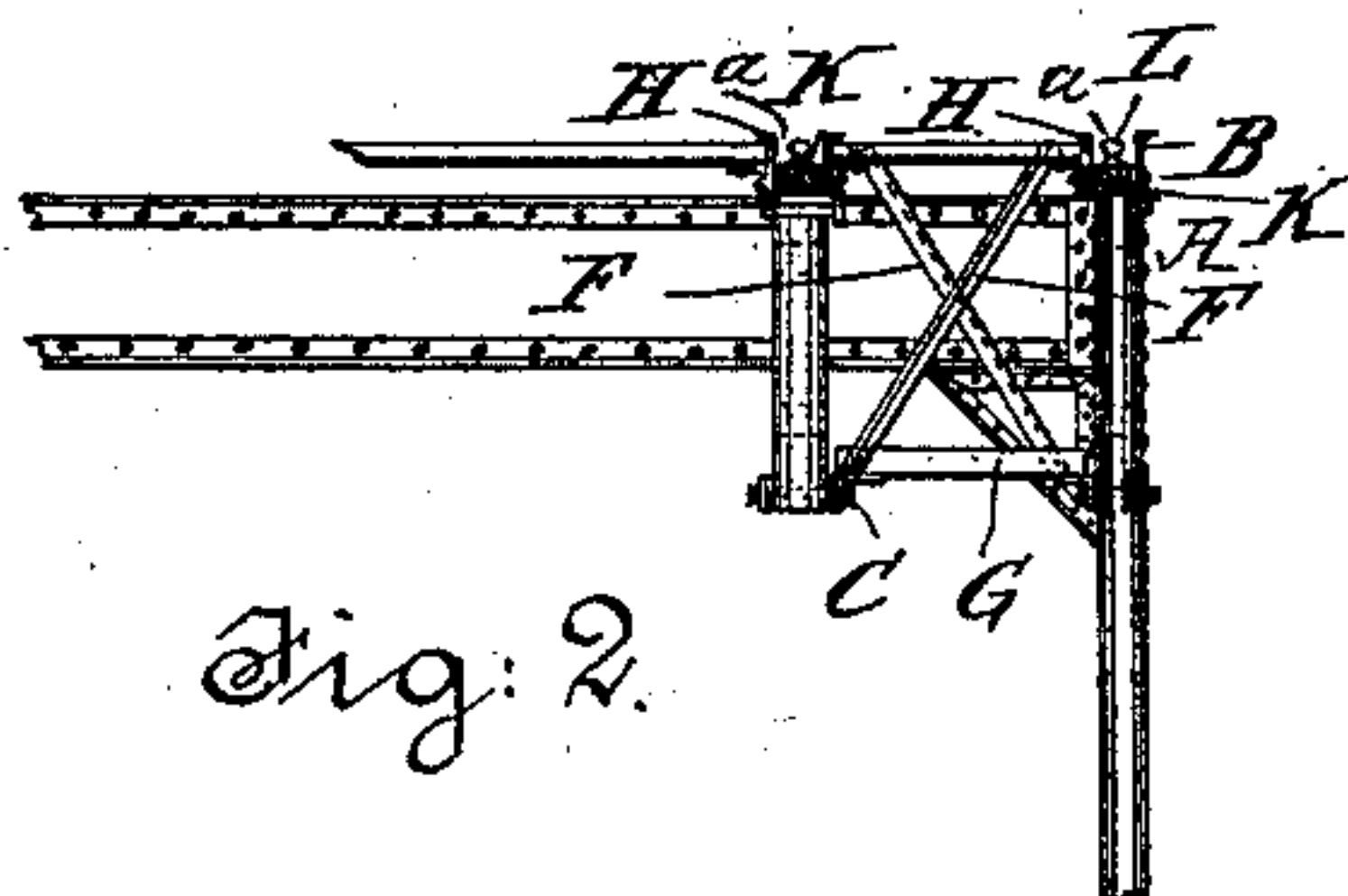


Fig: 2.

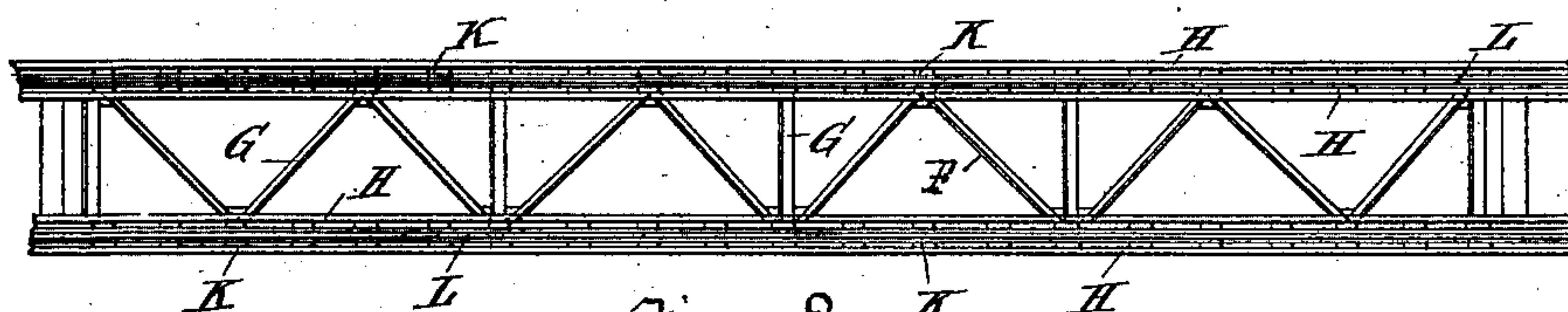


Fig: 3.

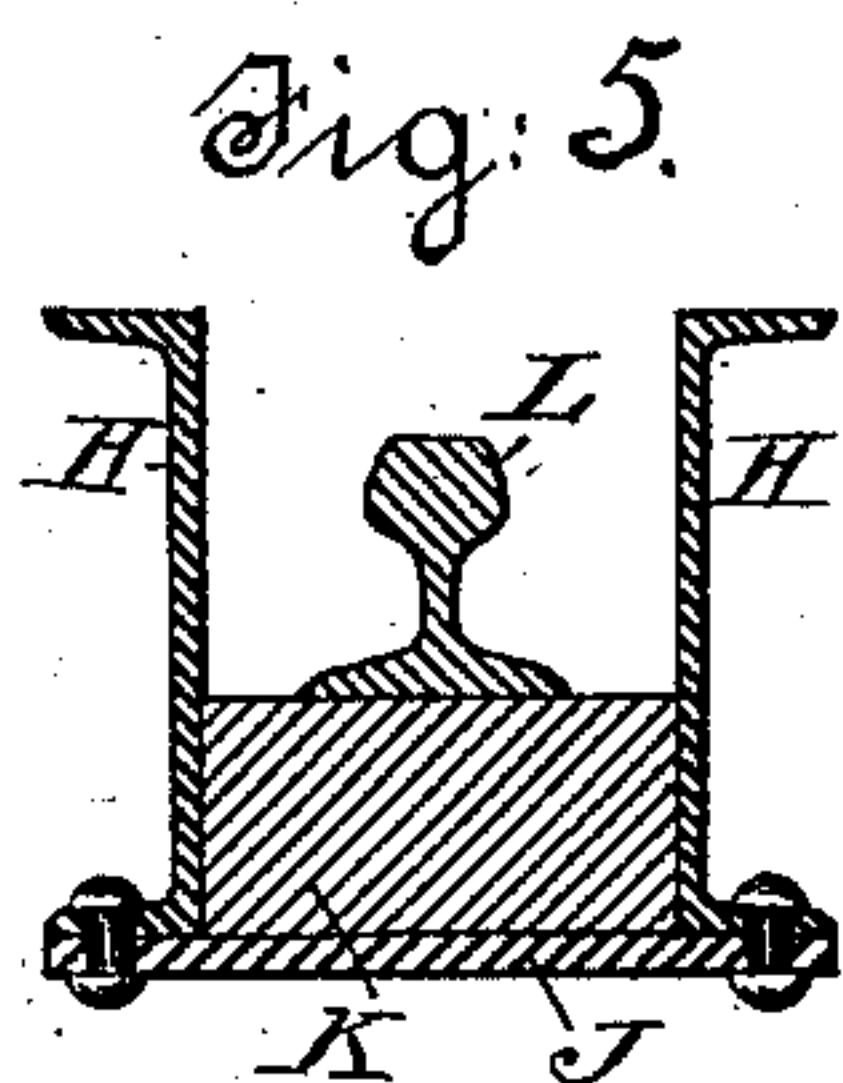


Fig: 5.

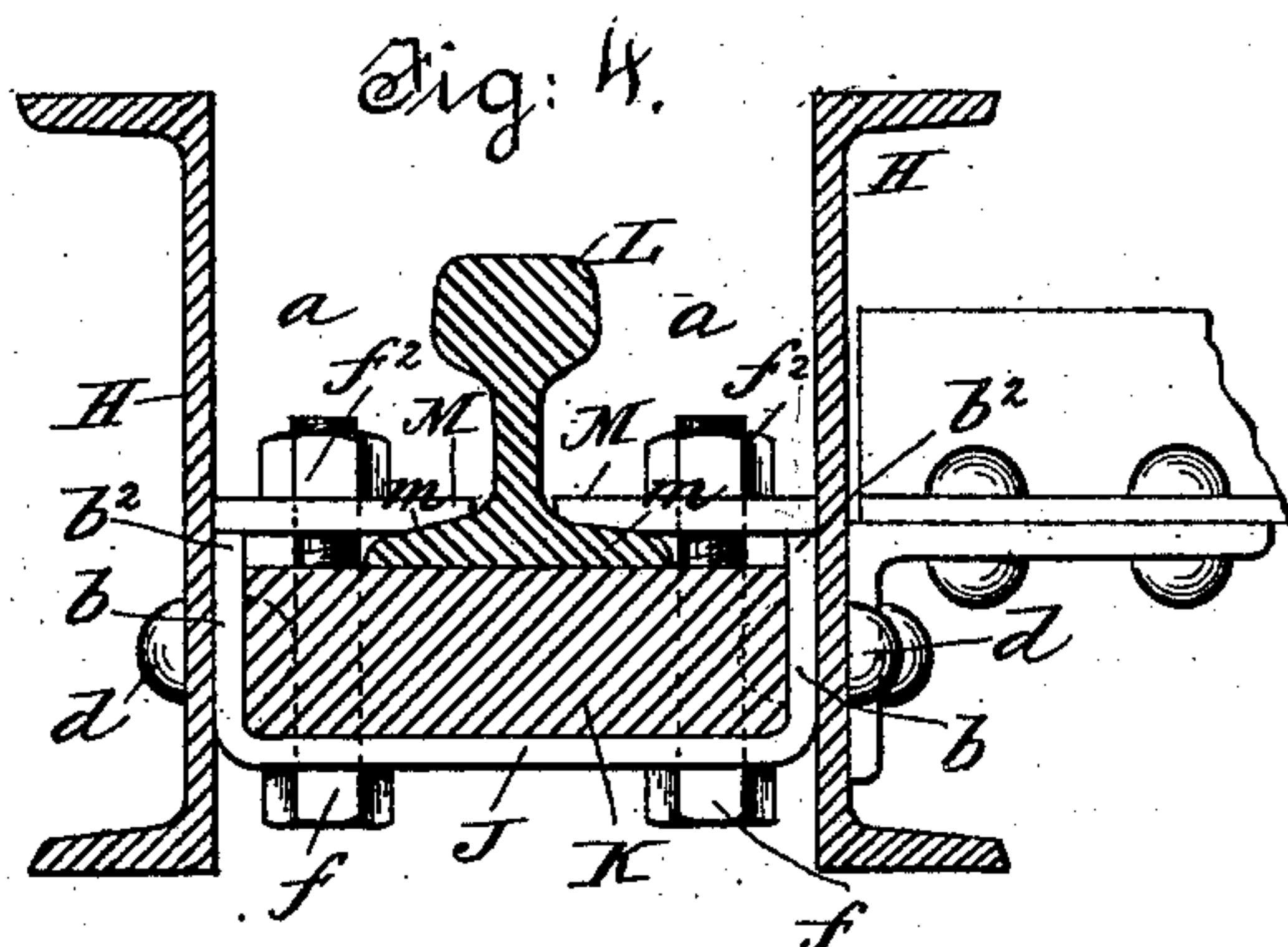


Fig: 4.

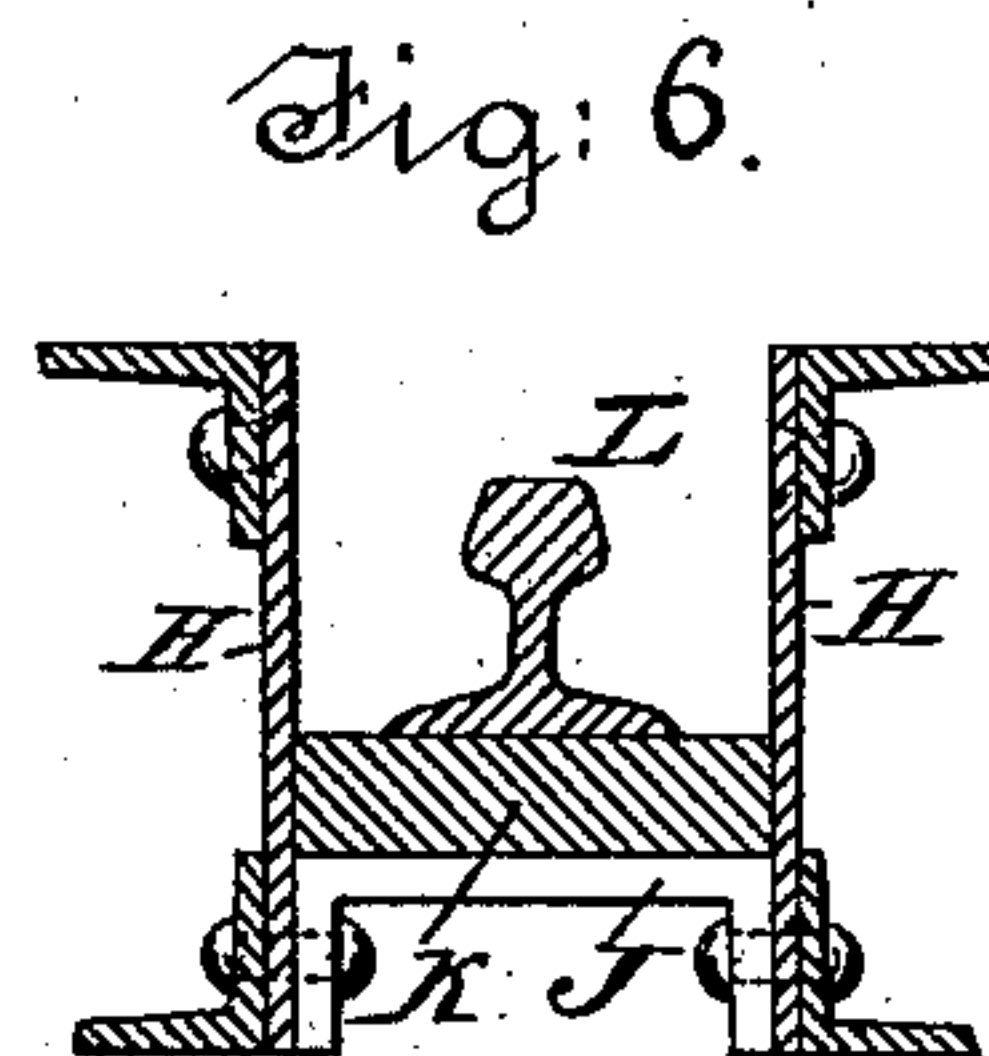


Fig: 6.

WITNESSES:

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BRIDGE FOR ELEVATED RAILWAYS, &c.

SPECIFICATION forming part of Letters Patent No. 359,467, dated March 15, 1887.

Application filed November 16, 1886. Serial No. 219,005. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PEGRAM, a citizen of the United States of America, and a resident of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Bridges for Elevated Railways and other Purposes, of which the following is a specification.

This invention relates to a bridge for elevated railroads, &c., the object of which is to construct a suitable and proper bridge in such a manner that the rails are carried directly by the longitudinal trusses, the usual cross-ties, and the longitudinal beams above said cross-ties, as heretofore employed, being dispensed with; and the invention consists in a truss for an elevated railroad or other bridge the top chord of which is substantially in the form of a longitudinal trough, which longitudinal trough is adapted to serve, in addition to the functions of the top chord of the truss, also as a stringer for the support of the car-wheel rail and as a guard for the car-wheel.

In the accompanying sheet of drawings is shown a form of structure which embodies the present invention, in which—

Figure 1 is a side elevation of one span or bridge of an elevated railroad constructed according to the present invention. Fig. 2 is a partial cross-section of Fig. 1. Fig. 3 is a plan view of Fig. 1. Fig. 4 is a cross-section of the top chord of the truss on an enlarged scale. Figs. 5 and 6 are cross-sections of top chords of somewhat different construction from that shown in the preceding figures.

In the drawings, A represents a truss for an elevated-railroad bridge, of which truss B is the top chord, C the bottom chord, D the ties, and E the braces. F is the cross-bracing between two parallel trusses, and G the lateral braces between such trusses.

The top chord, B, of each truss is made substantially in the form of a trough, *a*, and, as shown, consists of two parallel longitudinal pieces, H, each extending the entire length of the truss, which constitute the sides of said trough, and said pieces H are placed a suitable distance apart from each other and kept separate and parallel and firm by the interposition of horizontal plates J, having angular

projections *b* placed between the pairs of parallel pieces H, and firmly secured in such position by bolts or rivets *d*, passing through the said angular projections *b* and the thickness of the pieces H. These horizontal plates J are preferably placed between the parallel pieces H at intervals in the length thereof, although in some instances they might be replaced by one continuous piece, and these said plates J constitute in substance the bottom of the trough, the said pieces H the sides thereof, and the whole combines to form the top chord of the truss.

Upon each of the horizontal plates J, or upon such of them as is desired or necessary, are placed blocks K of suitable height, which blocks are suitably secured in position in any proper manner—such as by the employment of the bolts *f*, passing through the thickness of the horizontal plates J and of said blocks K.

The car-wheel rail L is placed upon and properly secured to the said blocks K midway between the side pieces, H, of the trough.

A simple and effective means of securing the car-wheel rail L in its position consists in the employment of narrow metal plates M on each side of the rail, each of which plates, by one edge, lies upon the bottom lateral flange, *m*, of the rail, and by its other edge upon the upper end, *b*², of the flanged projection *b* of the plate J, which end *b*² is in or about the same horizontal plane with the top of the said lower lateral flange, *m*, and bolting said plates to the blocks K and plate M, and this is practically and economically secured by passing the bolt or rivet *f* (used for the confinement of the blocks K with the plate J) also through the thickness of said plate M, where it is headed or provided with a nut, *f*².

In the truss shown the ties D are connected to the top chord, B, by pins passing through them and through the pieces H, and the braces E are connected with the top chord, B, of the truss by the employment of projections *l*, formed upon or secured to the inner faces of the pieces H below the parts of support for the car-wheel rail, to which projections *l* are secured braces, which extend between the upper chord of the truss and the lower chord. It will therefore be seen that the plates H H,

together with the horizontal plates J, either placed at intervals or made continuous, constitute, in substance, a trough, and this trough-shaped structure, as a whole, is and serves the purpose of the top chord of the truss, the bottom thereof the support for the car-wheel rail, and the sides thereof the guards for the car-wheel; and while a particular construction of several parts joined together has been particularly shown and described as forming the trough-shaped top chord of the truss, other parts and forms may be employed to form such trough-shaped chord which serve the purposes designated; and in Figs. 5 and 6 modified constructions are shown in the formation of the trough-shape of the chord, which will be obvious from an inspection thereof; and it is not intended to limit the invention to any particular form of parts, or manner of joining them, which combine to form said trough-shaped chord, nor to any particular form of truss.

The advantages of a railway constructed in accordance with the present invention are manifest; but among them may be mentioned that wooden cross-ties and guard-rails as at present employed are entirely dispensed with, and there is the least obstruction of light to the street below, and the heavy shadows and tunnel-like appearance given to the street are avoided, a great desideratum in a city.

The repairs are reduced to a minimum, and may be made with much greater ease than in the present structures. The chords of the different trusses are connected by lateral diagonal bracing, F, whereby the same stiffness is secured to the structure as if cross-ties were used. The safety of the railway is insured, the wheels running in iron troughs are prevented from leaving the rails, and in the event of a broken wheel or axle the truck drops upon the top of the sides H of the trough, which is in effect the same as a pair of skids.

The structure is much more readily cleaned of snow, and the space between the trusses allows ample room for pulleys for a cable, which is not easily secured where cross-ties are employed. The main advantage, however, consists in making the floor system an integral part of the truss through which great economy of cost and construction and insurance of durability are secured.

I am aware that the use of the top chord of a truss in the double duty of top chord and stringer is not new, and I am also aware that the double duty of a stringer as a stringer and wheel-guard is not new. I do not therefore claim either of such things distinct and in it-

self, as my invention resides more essentially in a construction whereby the trough-shaped beams form the top chord of the truss and perform the three functions of a top chord to the truss, a stringer for the rails, and wheel-guard.

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

1. A truss for elevated railways and other purposes having the top chord of the truss constructed in the form of a trough, and serving as a support for the rails and as guards for the car-wheels, substantially as and for the purposes described.

2. A truss for an elevated railway, &c., having its top chord made of parallel longitudinal pieces H H, and horizontal plates J, joined together in a manner to form in substance a trough, substantially as described, for the purpose specified.

3. A trough-chord formed substantially as described, in combination with braces and ties to form a truss for elevated railroad or other purposes.

4. A truss for elevated railways, &c., having its top chord made of parallel longitudinal pieces H H, and a series of horizontal plates J, at intervals, with spaces between them, joined together in a manner to form in substance a trough, substantially as described, for the purposes specified.

5. In an elevated railway, &c., a truss having its top chord made of parallel longitudinal pieces H H, and horizontal plates J, joined together in a manner to form in substance a trough, and having blocks K resting on said horizontal plates J, substantially as described, for the purposes specified.

6. The combination, with the trough-chord B, inclosing and supporting the rail L, of the braces E, bottom chord, C, and ties D, to form a truss for elevated railroads and other purposes, substantially as described.

7. The combination, with the trough-chord B, inclosing and supporting the rail L, of the braces E, the tie-bars C and D, and the transverse and lateral bracing F and G, to form a bridge for elevated railroads and other purposes, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in the presence of two witnesses, this 10th day of November, 1886.

GEO. H. PEGRAM.

Witnesses:

T. L. GRAHAM,
JNO. J. DILLON.