

P. FISCHER.  
Railroad Bridge.

No. 230,410.

Patented July 27, 1880.

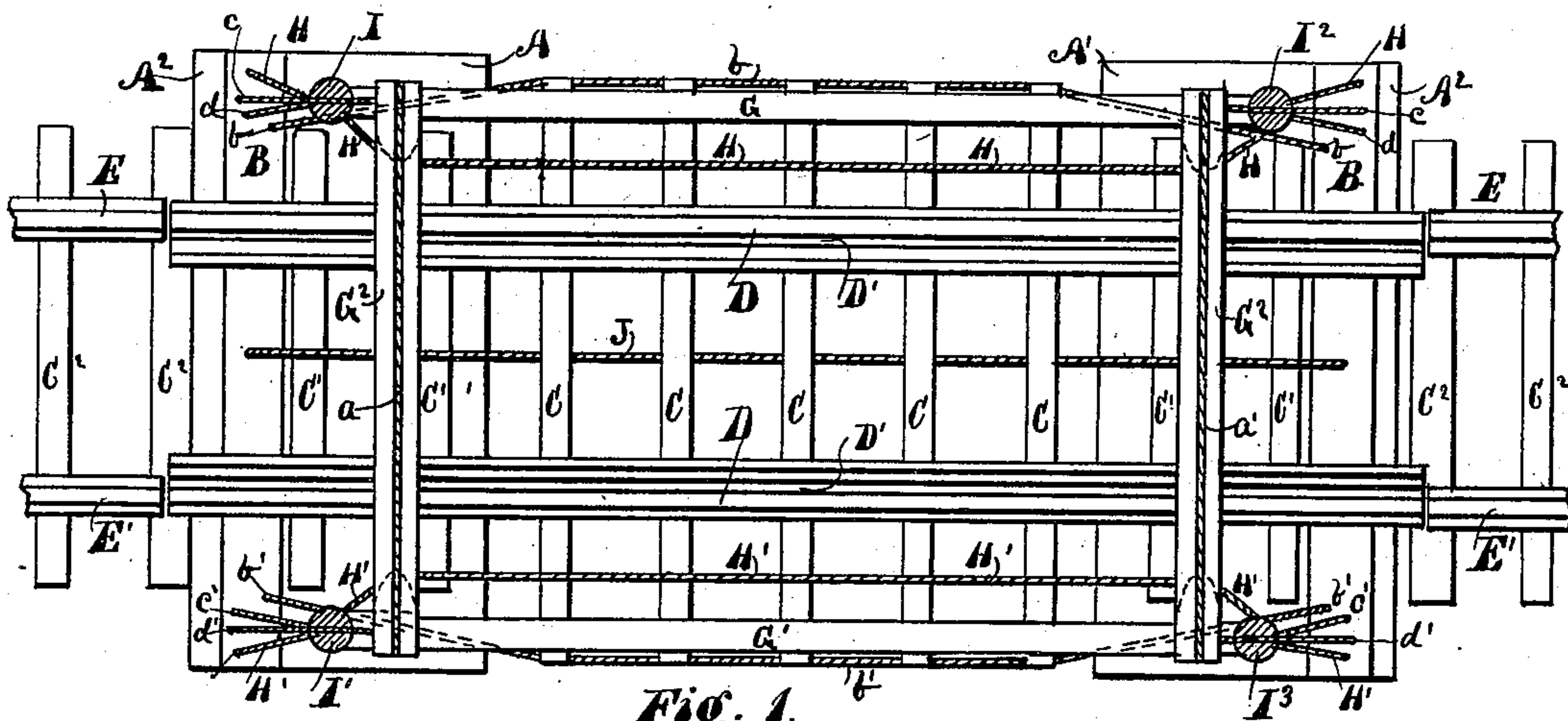


Fig. 1.

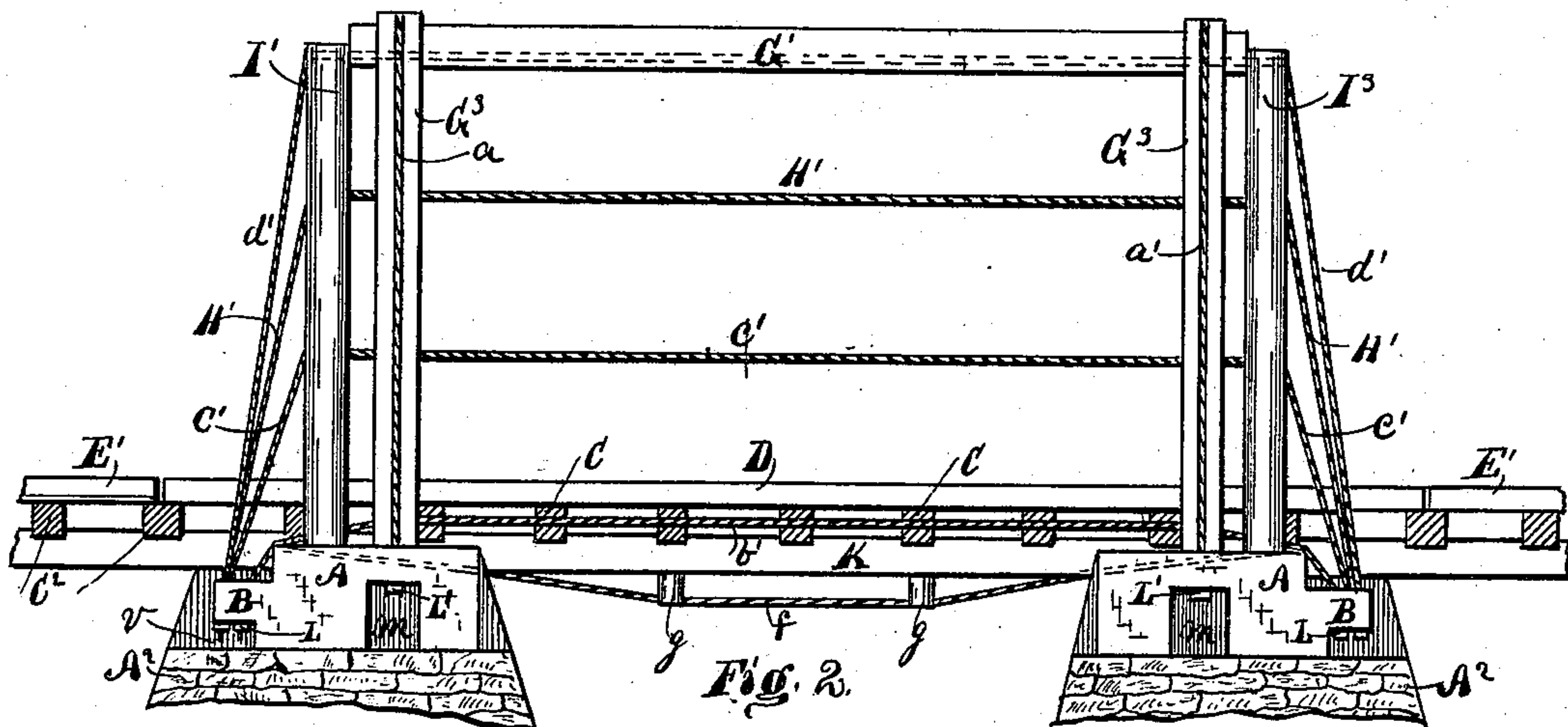


Fig. 2.

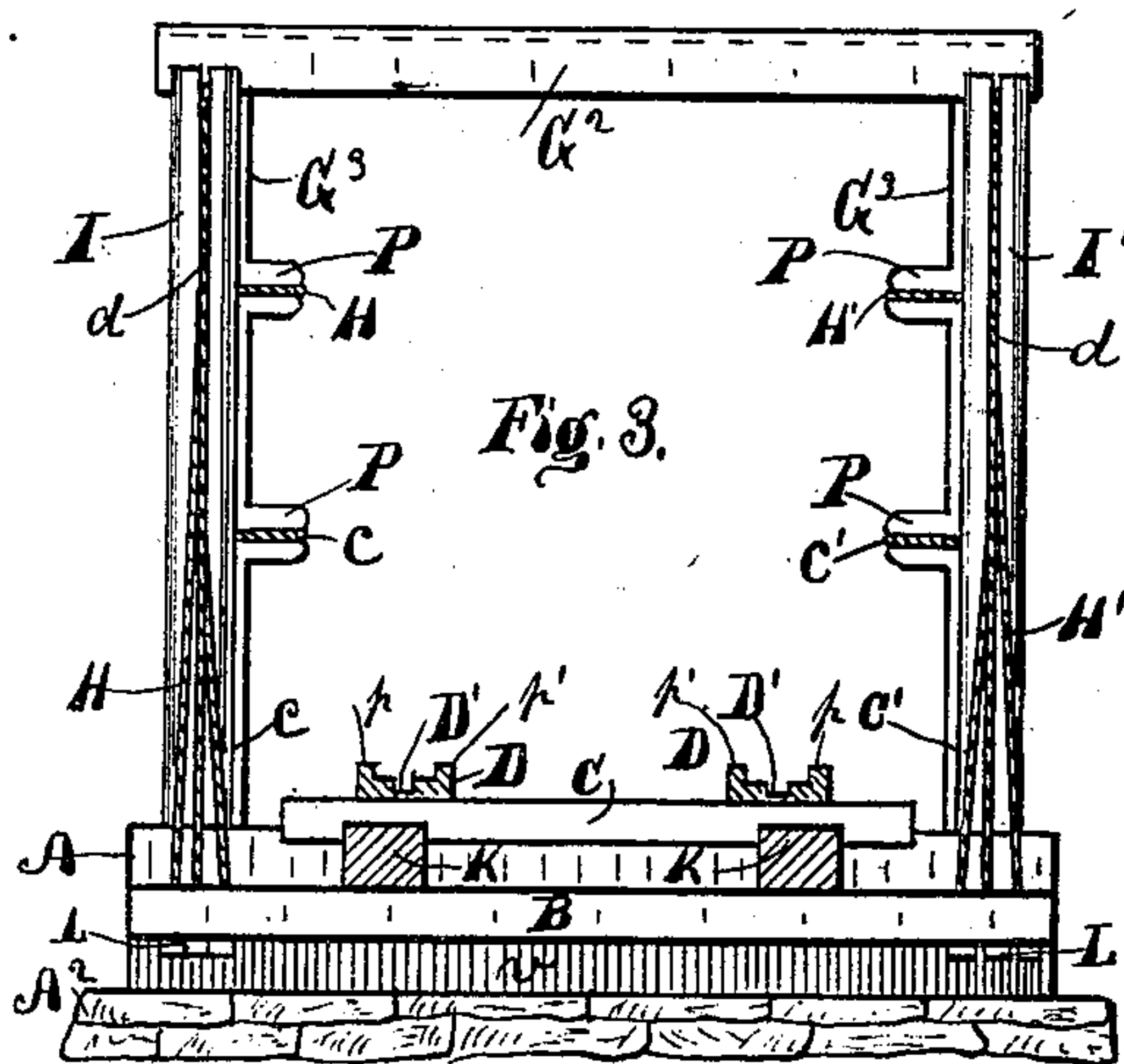


Fig. 3.

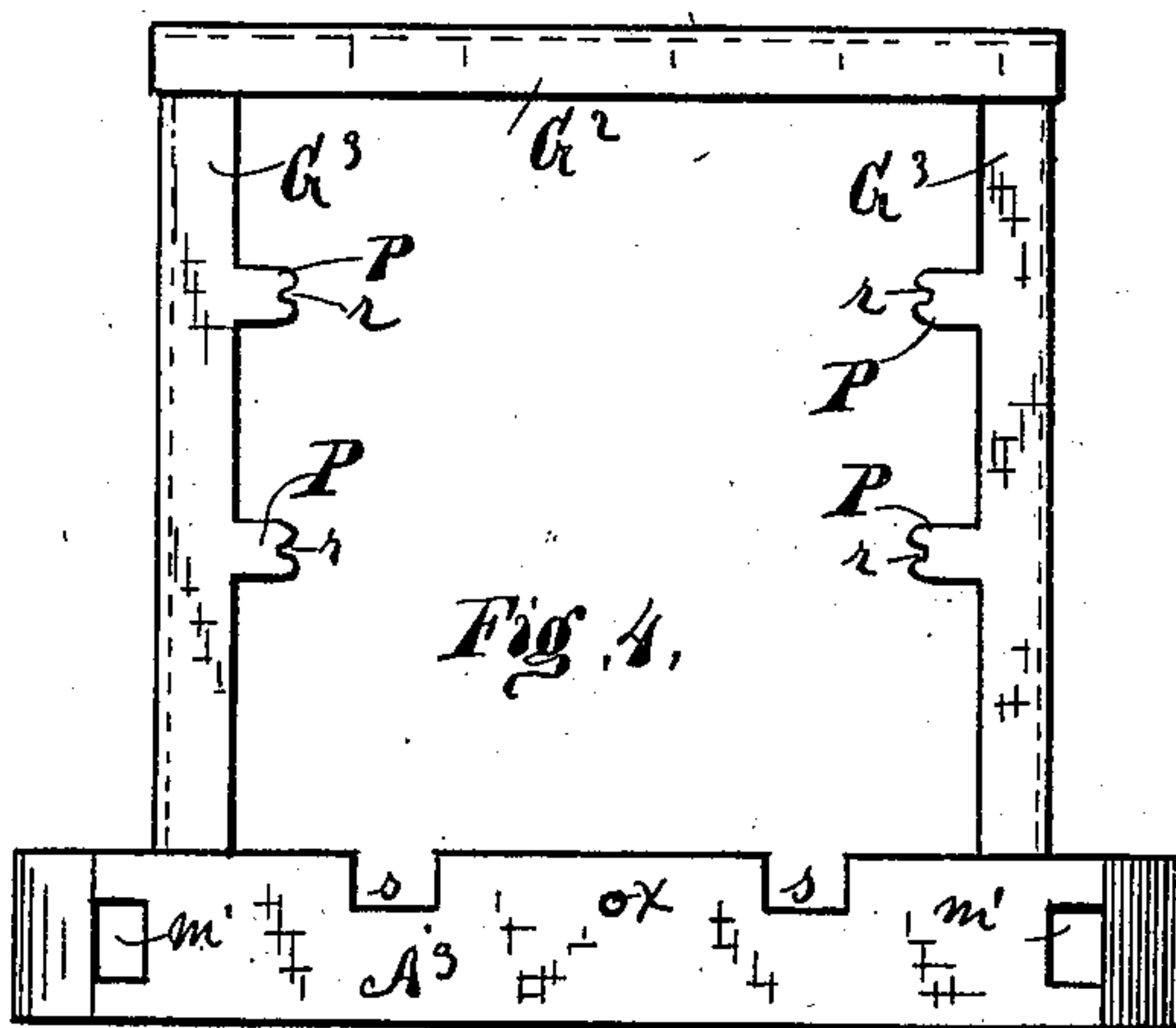


Fig. 4.

WITNESSES;  
Zelora Phillips  
G. H. Remmett

INVENTOR.  
Peter Fischer,  
Per E. Frink his Attorney



# UNITED STATES PATENT OFFICE.

PETER FISCHER, OF CRAWFORDSVILLE, INDIANA.

## RAILROAD-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 230,410, dated July 27, 1880.

Application filed February 3, 1880.

*To all whom it may concern:*

Be it known that I, PETER FISCHER, of Crawfordsville, in the county of Montgomery and State of Indiana, have invented a new and  
5 useful Improvement in Railroad-Bridges, of which the following is a specification.

My invention relates to certain improvements in the construction of railroad-bridges, in which the track is constructed with the design to prevent the car-trucks from leaving it, and the sides of the bridge are constructed to prevent the cars from turning over or coming in contact with the bridge-frame and tearing it to pieces, should an accident happen to the  
10 cars by reason of which the cars should be tilted or thrown into such a position as would, without my improvement, cause them to strike the frame-work of the bridge; and the object of my invention is to provide each side of the  
15 bridge-frame on the inside with horizontally-stretched wire ropes, or guards of other suitable material, running parallel with the bridge and secured to inward-projecting brackets or bearings formed or attached to the bridge-  
20 frame, and also arranged so that one or more of these guards shall be located near the top of a car and as close as practicable thereto on each side of the bridge, to prevent the car from turning over in the bridge, or the top of the car from  
25 striking the bridge-frame, and one or more of said guards located near the bottom of the car-bed to prevent the lower part of the car from leaving the track or striking the bridge-frame.

35 These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan or top view of the bridge and its approaches. Fig. 2 is a side elevation  
40 of the same. Fig. 3 is an end elevation, and Fig. 4 is a front elevation, of one of the auxiliary frames or supports for the side guides.

Similar letters refer to similar parts throughout the several views.

45 The bridge itself may be of any of the well-known forms of construction, resting on the abutments or piers  $A^2 A^2$  in the usual manner.

A B represent bed-plates, which are securely anchored to the piers or abutments  $A^2$ .  
50 These bed-plates are provided with recesses  $m$  and  $l$ , for the purpose of securing the ends

of the guides and stays employed in my improvement. On these bed-plates A B are mounted the stringers K, on which the cross-ties C C' are placed, and secured by being let  
55 into recesses formed in the upper surface of said stringers. These stringers are also supported by the truss  $g f g$ , the rope or rod  $f$  being carried over or through the bed-plates A and securely fastened to the under side of  
60 the projecting brackets B by one of the nuts L at each end.

Near each end of each bed-plate A are mounted and securely fastened the uprights  $G^3 G^3$ , which are united together parallel with  
65 the track by the stringers  $G'$ , and also united together across but above the track, by the stringers  $G^2 G^2$ . Each of these stringers and uprights is provided with grooves running parallel therewith, in which the wire  
70 ropes or rods  $a a' d d'$  are retained.

The ropes or rods  $a a'$  pass along the groove in the top stringers,  $G^2$ , and down in the groove of the uprights  $G^3$ , and are made fast and taut  
75 by the nuts L' in the recesses  $m$  of the bed-plates A. The wire ropes or rods  $d d'$  pass along in the grooves formed in the under side of the stringers  $G'$ , over the top ends of the  
pillows I I' P<sup>2</sup> I<sup>3</sup>, and thence downward through the bracket B of the bed A, and are secured  
80 by nuts below at each end.

It is obvious that various cross-braces (not shown) may be employed to strengthen and stiffen the top frame,  $G G' G^2 G^2$ , or the side frames,  $G' G^3 G^3$ . Each upright  $G^3$  is provided  
85 with brackets P, projecting inward toward the track, and to the inner ends of these brackets are secured the guide-ropes of wire, or guide-bars of any other suitable material H H' c c'. These guides are designed to be very strong  
90 and rigid, and are firmly held in place, similar to that shown in Figs. 1, 2, and 3, where I have, for convenience, shown one form only of securing these guides, which consists of extending the guides themselves, or by attaching  
95 to them the wire ropes or rods which lead through the vertical pillows I I' P<sup>2</sup> I<sup>3</sup>, and then downward and through the brackets B of the bed-plates A, where they are firmly secured, the guides being shown as held up in notches  
100  $r$ , formed in the brackets P.

It is obvious that various other means of



securing and supporting these side guides,  $H H' c c'$ , may be employed to hold them rigid in their projecting position toward the cars without departing from the essence of my invention.

The ties  $C C$  are each provided with a horizontal notch in each end, in which the wire ropes or rods  $b b'$  are supported. Each end of each of these ropes or rods also passes over the bed-plates and through the brackets  $B$  thereof, where they are firmly secured, thus preventing any lateral movement of the ties.

The wire rope or rod  $J$  is secured to one bracket,  $B$ , then passes over or through the bed-plate  $A$ , also over one or more cross-ties,  $C'$ , close thereto; thence through several of the ties  $C$ ; thence over one or more ties,  $C'$ , and bed-plate  $A$ , and through the bracket  $B$  at the other end of the pier, where it is made fast and taut, thus forming an additional strength to the rail-supports.

The rails  $D D$  are constructed in cross-section, like that shown in Fig. 3—that is, the rail is provided with upright flanges  $p p'$  at each side, having a thread between said flanges and the groove  $D'$ , in which the flange of the wheels pass. Thus each individual rail is provided with a means of preventing the flange of the wheels from running off on either side.

In Fig. 4 an auxiliary frame is shown. These frames may be introduced and secured at various places in the span between the abutments or piers, for the purpose of giving additional support to the side guides,  $H H' c c'$ .

When a train of cars is passing through a bridge having my improvements attached thereto, if the trucks should be inclined to leave the track the double-flanged rail  $D$ , aided by the guides  $H H' c c'$ , will prevent it from doing so. If a wheel or axle should break, and the car should attempt to leave the track or tilt over or slew around, the guides

$H H' c c'$  will prevent it from coming in contact with the frame-work of the bridge, and thus prevent injuring the bridge, and probably save many lives and much damage to rolling-stock.

I am aware that prior to my invention railroad-bridges have been made with braces and with bed-plates anchored to the abutments, piers, or ground, for the purpose of sustaining the bridge. I therefore do not claim such a combination broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a railroad-bridge, of a series of frames arranged at right angles to the track, having inward-projecting brackets or supports  $P$ , and the rigid side guides,  $H H' c c'$ , substantially as shown, for the purpose specified.

2. In a railroad-bridge, the auxiliary frames  $A^3 G^2 G^3 G^3$ , having the uprights  $G^3$  provided with inward-projecting brackets or supports to support and strengthen the side guides,  $H H' c c'$ , all combined, substantially as shown and specified.

3. In combination with a railroad-bridge, the inward-projecting brackets or supports  $P$  for the side guides,  $H H' c c'$ , substantially as and for the purpose specified.

4. In combination with a railroad-bridge, the rigid side guides,  $H H' c c'$ , adapted to prevent any car that may be inclined to leave the track from striking the frame-work of the bridge, substantially as specified.

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

PETER FISCHER.

Witnesses:

E. O. FRINK,  
G. H. RENNETT.