

(No Model.)

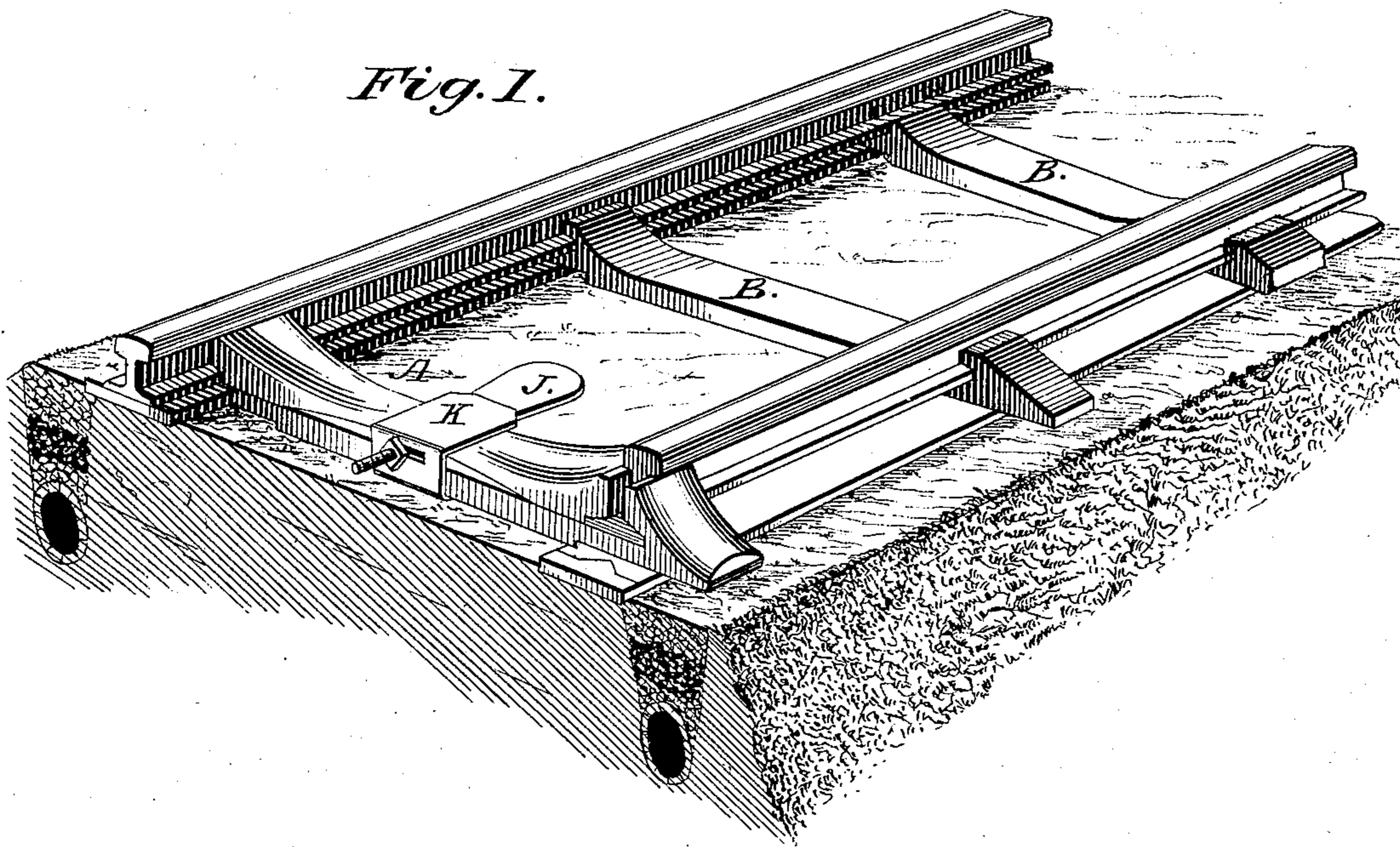
W. B. HENNING.

# RAILWAY TIE AND TRACK FASTENING.

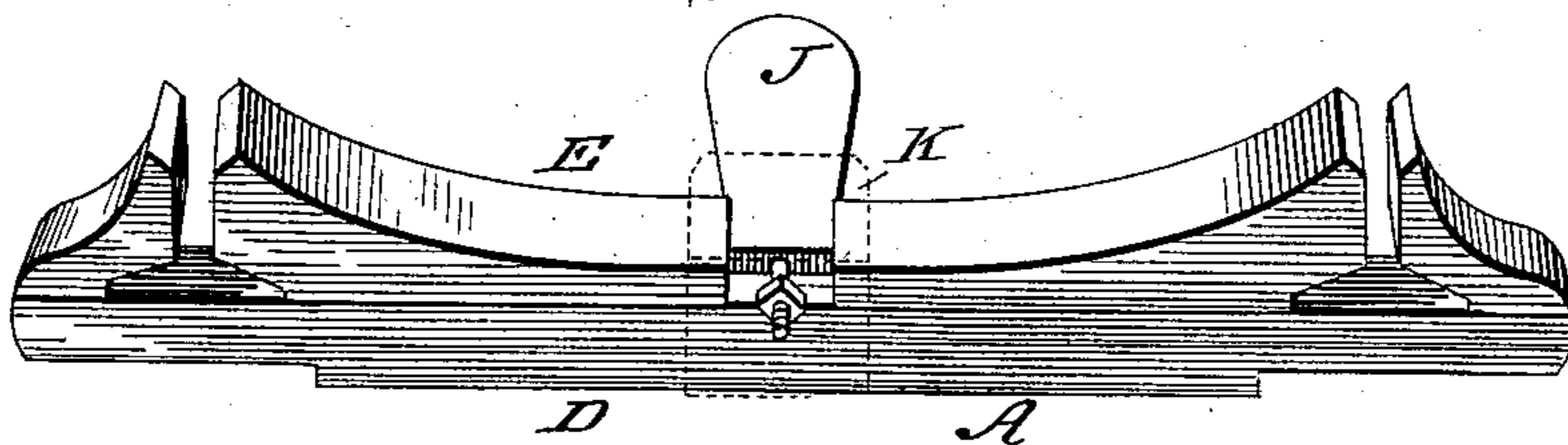
No. 323,809.

Patented Aug. 4, 1885.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

Fred. L. Dieterich.  
 #  
 Carl W. Henning.

INVENTOR.

Wm. B. Henning

# UNITED STATES PATENT OFFICE.

WILLIAM B. HENNING, OF WATERLOO, INDIANA.

## RAILWAY-TIE AND TRACK-FASTENING.

SPECIFICATION forming part of Letters Patent No. 323,809, dated August 4, 1885.

Application filed May 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WM. B. HENNING, of Waterloo, county of De Kalb, and State of Indiana, have invented certain new and useful  
5 Improvements in Railway-Tie and Track-Fastenings, of which the following is a specification.

The invention relates to an appliance for railways, which combines ties, rail-joints,  
10 splice-bars, and rail-fastenings. The present system of railway construction is unsafe and unsatisfactory to the demands of eminent railway engineers.

The object of my invention is to provide a  
15 system of railway-ties which shall be cheap and durable, and so arranged as to securely fasten the rails by their own adjustment thereto, and thus obviate the use of numerous appliances which are expensive and insecure.

20 The invention consists, first, in a sectional railway-tie, combining the principles of track-joint, joint-plate, or fish-plate, rail-chair, and track-gage, the said tie being in part expansive, and thereby self-adjusting in its application to the rails; second, in intermediary ties  
25 which may be much lighter than the expansion-tie, and having a rail-seat and base-clutch at each end, the said clutches being so arranged that by reversing like ends of the ties a firm  
30 grip will be secured on both sides of the rails, by which means but one expansion-tie is required to every rail-length of track. The said ties may be made of any material requisite, the most available at present, perhaps,  
35 being iron and steel; but, to provide for wood ties already in use, or available in the near future, the intermediate ties may be wholly or in part substituted by wood ties, the expansion-ties being placed at intervals of about  
40 fifteen feet, thereby giving the necessary support to the track and obviate the use of fish-plates, track-bolts, rail-holes, rail-chairs, spikes, and nut-locks. The adoption of my system will prevent any spreading of the  
45 rails, rattling of rail-joints, or any movement of the joints except such slight spring as is desired to prevent splitting of the rail ends. Provision for such spring is secured by a recess in the expansion-tie immediately under  
50 the rail-joint. In dispensing with wood ties and using my expansion and light clutch ties it will be necessary to support the ends of the

ties upon longitudinal bearings of wood, or any material offering proper resistance or support. The said bearings would not require  
55 one-half the amount of timber now used in cross-ties, while my system of ties may be made so light that the saving of material much more than compensates for the cost of such bearings. A system of longitudinal  
60 bearings under the ties, and supported by lines of under drains, is the only plan by which a perfect railway can be built, as in this way the weight of trains is distributed over a large portion of the structure, instead of impinging  
65 upon each separate tie, causing a spring and recoil. By the use of such bearings ties for railways may be made very light, while their efficiency in supporting the weight and concussion of trains is increased more than ten-  
70 fold. My invention will secure all the essential points which eminent railway engineers have long demanded—viz., continuous and unbroken bearings, a slight elasticity of the track without the spring and recoil of separate  
75 points of bearing, a vertical stiffness of the joint equal to or greater than any other part of the rail, while extremes of expansion and contraction of the rails are provided for and regulated without diminishing the efficiency  
80 of the joint. As the continuous bearings receive no punctures from spiking, they would, if made of timber, outlast common ties as about five to one, and if made of some fiber substance chemically treated, or of glass,  
85 would be requisite in strength and enduring.

In the accompanying drawings, Figure 1 is a perspective of a device embodying my invention, and showing the ties in position. Fig. 2 is a drawing in detail of my expansion rail-  
90 way-tie. Fig. 3 is a drawing of the intermediary clutch-tie.

Similar letters of reference refer to like parts throughout the several views.

In Fig. 1, A shows the sectional expansion  
95 rail-joint tie. B shows the intermediary clutch-ties. In Fig. 2, D shows the lower section of the expansion-tie, and E shows the short upper sections of the same. J shows one form of expansion bolt or key. K shows  
100 expansion-tie clasp. In Fig. 3, B shows the intermediary clutch-tie. The lower section, D, of the expansion-tie A is provided with a recess immediately under the rail-joint to allow

slight spring to the ends of the rails. The ties have either lugs or shoulders on the underside near the ends to prevent any sliding of the track from centrifugal force and swing of trains on curves.

In my expansion railway-tie I do not limit nor restrict myself to any particular or special manner of expansion; but such expansion may be secured by a bolt or key placed between the two short upper sections E and transversely through or across the lower section, D, either horizontally with the plane of the road or vertically, in which latter case a simple hard-wood key would suffice; or expansion may be secured by a bolt placed between the short sections, and in lineal or parallel position with the tie, the said bolt being screwed into one of the short sections E, and having resistance in or against the other short section E.

I am aware that railway-ties have been constructed with rail-seats and base-clutches, and I do not therefore claim such as my invention.

My invention consists, broadly, in a railway construction having continuous bearings under the ties for the purpose of securing greater bearing and resistance under the weight and concussion of engines and rolling stock, and also, in connection therewith, of a system of adjustable railway-ties the combination, co-operation, and adjustment of which is intended

to obviate the use of other appliances for rail-fastenings.

I claim as my invention and desire to secure by Letters Patent—

1. An expansion-tie for railways, the said tie being sectional and adjustable in its parts, the lower plate or section having supports at each end for securing the grip to the outer sides of the rails, and having short sections extending from the inside of the rails toward the center of the tie, and the said short sections of the said tie being forced or drawn against the rails by a bolt, key, bar, or spring, thereby securing a firm grip and support of the rails, substantially as and for the purposes hereinbefore set forth.

2. The combination, with an expansion railway-tie, of intermediary ties having a rail-seat and base-clutch at each end for reverse sides of the rails, the said intermediary ties being laid with like ends reversed, thereby securing, in connection with the expansion-tie, a rigid and conjoined structure of ties and track, substantially as and for the purposes set forth.

WM. B. HENNING.

Witnesses:

EARL W. HENNING,  
RALPH ELVERTON.