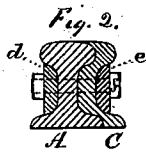
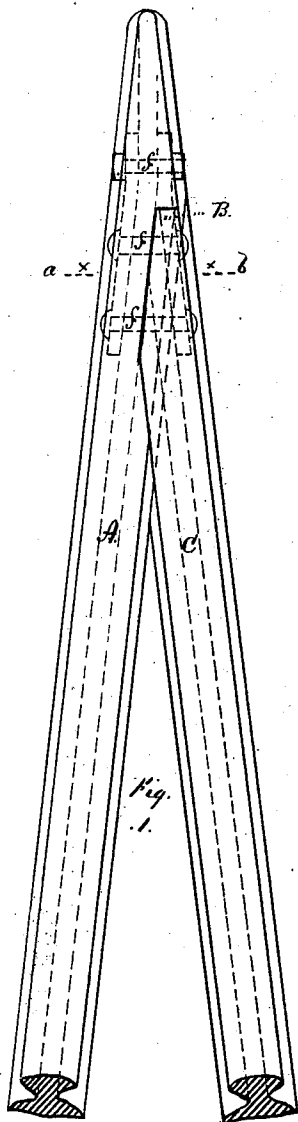


J. JOHNSON.
Railway Frog-Point.

No. 167,671.

Patented Sept. 14, 1875.



WITNESSES:

J. Homer Hildreth
Chas Isham

INVENTOR.

James Johnson
by Cochran & Malcomson
his Attorneys

UNITED STATES PATENT OFFICE.

JAMES JOHNSON, OF HARROGATE, ENGLAND, ASSIGNOR TO JOSEPH WOOD,
OF RED BANK, N. J., AND EDWIN R. BENNET, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILWAY FROG-POINTS.

Specification forming part of Letters Patent No. **167,671**, dated September 14, 1875; application filed
January 23, 1875.

To all whom it may concern:

Be it known that I, JAMES JOHNSON, of Harrogate, in the county of York, England, in the United Kingdom of Great Britain and Ireland, formerly of Stoke-upon-Trent, have invented certain Improvements in Railway Frogs or Crossings to be used on railways, of which the following is a specification:

The object of this invention is to increase the strength of the rails constituting that part of the permanent way of railways which is termed a crossing or frog; and consists in an improved manner of making the angular junction of the two rails at the point where the two lines diverge. This junction between the two rails has hitherto been effected by cutting away a portion of one rail and fitting the others into the recess at an angle, which leaves a vacant space between the webs of the two rails, and also considerably weakens the cut rail and causes it to become fractured by the action of passing trains.

Figure 1 represents a plan view of that portion of a railway crossing or frog where the rails join, and from which they diverge, usually called the point; and Fig. 2 is a vertical cross-section through the line *a b* of Fig. 1.

In the drawings, A represents the rail of the main line, and B the junction or point from which the crossing-rail C diverges. The

surface of the rail C that comes into contact and forms the junction with the rail A is tapered and grooved or recessed the length of its surface in contact with the rail A, so as to receive the projecting crown or flange of the said rail A, as shown in Fig. 2, so that the middle or web of the rails come into close and solid contact with each other, which increases the strength of the rails at their junction. When the rails are tapered and fitted together I place the iron or steel strengthening-plates *d e*, one on each side of the point, so as to cross the junction of the two rails A and C, and secure them by means of bolts or rivets *f f*, which pass through the plates and rails. The plate *e* is partly reduced in thickness at B, so as to leave a shoulder to fit against the end of the crossing-rail C, and thereby assist in keeping it from moving endwise.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

A railway-crossing or frog-point, formed of grooved or tapered rails A and C, secured together by means of plates *d e* and bolts *f f*, substantially as shown and described.

JAMES JOHNSON.

Witnesses:

JOSH. HOPPS, *Solicitor, Leeds.*

SAM. WIGHT.