

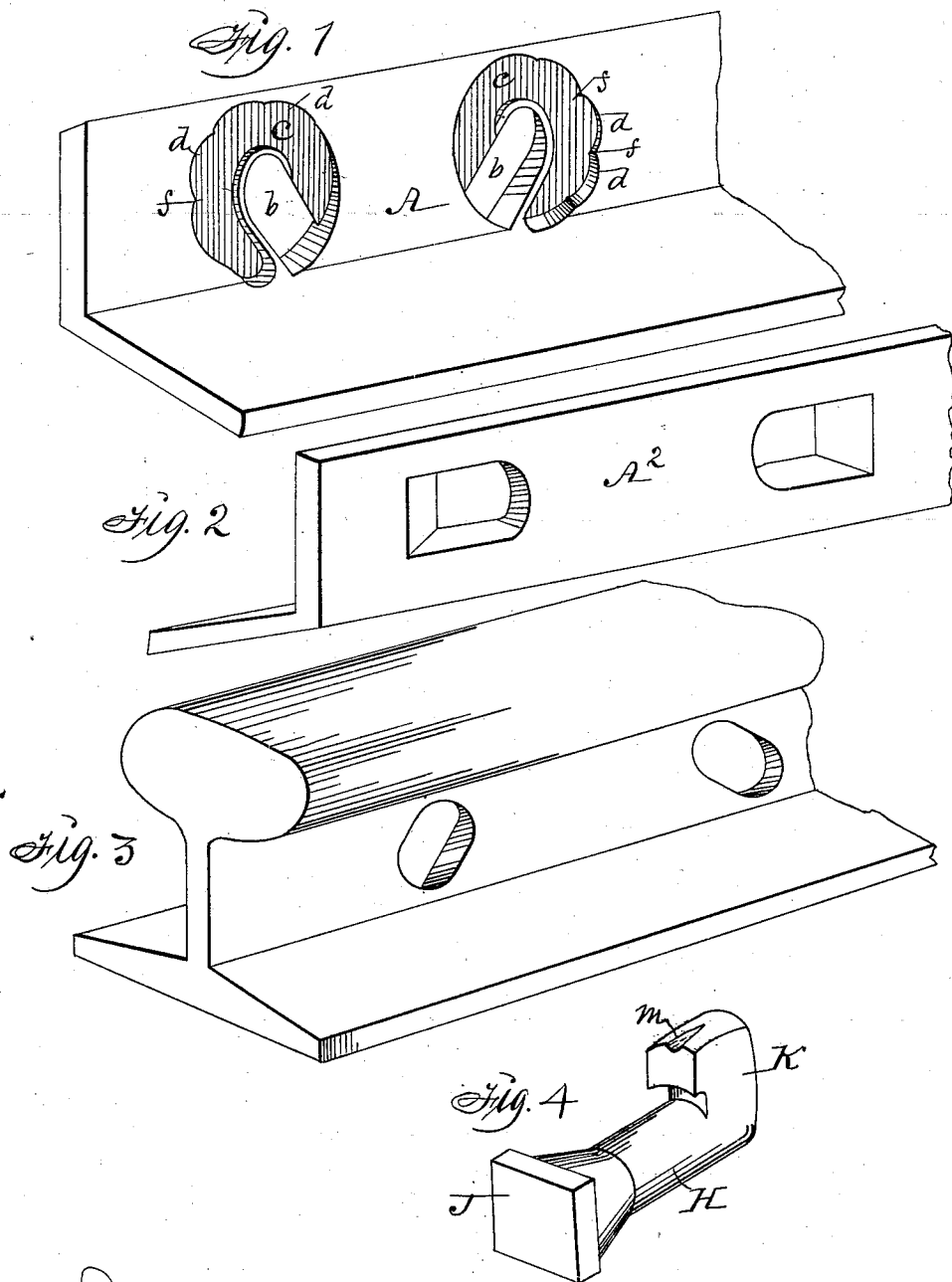
No. 628,416.

Patented July 4, 1899.

E. ROBINSON.  
RAILWAY RAIL JOINT.  
(Application filed Mar. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
Joshua Crawford  
Thomas G. Orwig.

Inventor:  
Ellsworth Robinson

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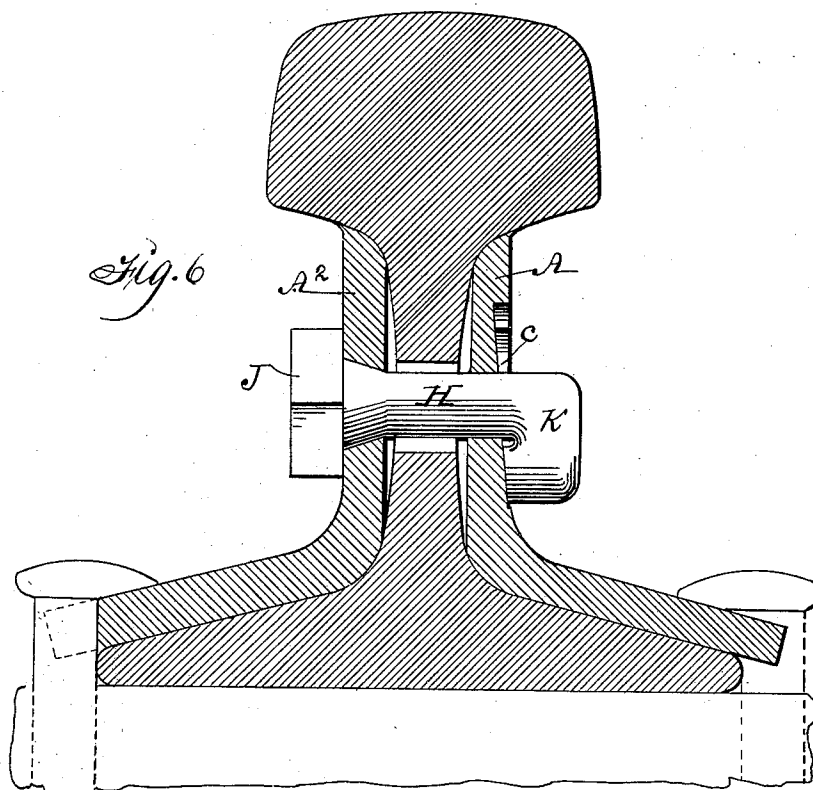
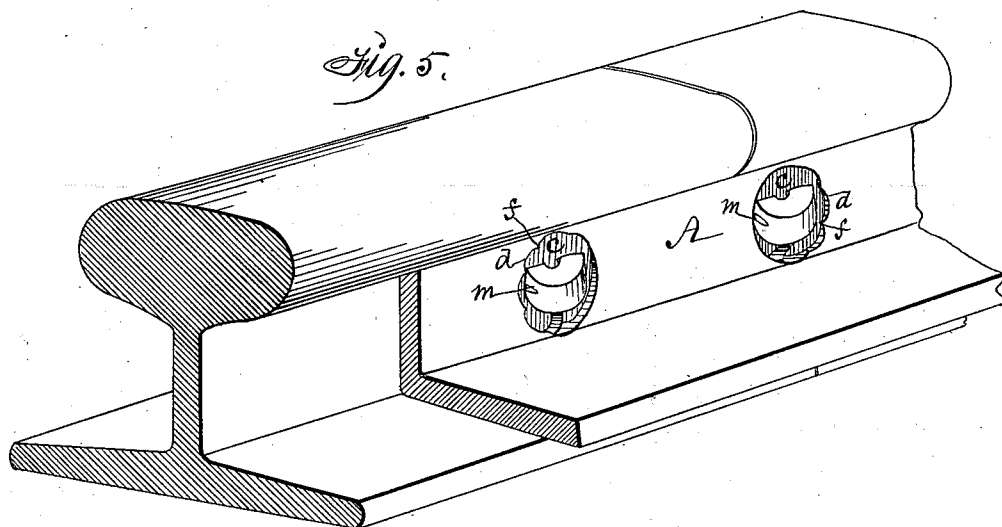
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# UNITED STATES PATENT OFFICE.

ELLSWORTH ROBINSON, OF NEWTON, IOWA, ASSIGNOR OF ONE-HALF TO  
JOSHUA CRAWFORD, OF SAME PLACE.

## RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 628,416, dated July 4, 1899.

Application filed March 21, 1899. Serial No. 709,879 (No model.)

*To all whom it may concern:*

Be it known that I, ELLSWORTH ROBINSON, a citizen of the United States of America, residing at Newton, in the county of Jasper and State of Iowa, have invented a new and useful Railway-Rail Joint, of which the following is a specification.

My object is to prevent the dangers and losses of life and property incident to the loosening of nuts on bolts in railway-rail joints and the impairing of such joints and spreading of tracks and derailling of locomotives and cars occasioned by the loosening of nuts.

My invention consists in a railway-rail joint in which there is no screw-bolt or nut and constructed as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a splice-bar in the form of an angle-iron provided with elongated apertures and inclined planes surrounding the apertures. Fig. 2 is a perspective view of a mating splice-bar that has elongated apertures, but no inclined planes on its face. Fig. 3 shows the end portion of a rail provided with elongated apertures in the web and inclined relative to head and flanges. Fig. 4 is a perspective view of a key adapted to take the place of a screw-bolt and nut for binding and locking the overlying parts of a railway-rail joint together as required to produce an improved railway-track. Fig. 5 is a perspective view of my invention; and Fig. 6 is an enlarged transverse sectional view of the joint, showing all the overlying parts securely clamped and locked together by means of the key that engages the inclined plane on the face of one of the splice-bars.

The letter A designates an angle-iron or splice-bar provided with a plurality of oblong and inclined apertures *b* and inclined planes *c* around the apertures, produced by forming circular depressions in the outside face of the bar. At the circumference of each depression there are a plurality of arcs *d* and reëntering points *f* between the arcs, adapted to engage the head of the locking-key, as hereinafter set forth.

A<sup>2</sup> is a mating angle-iron or splice-plate provided with elongated apertures that ex-

tend horizontally and are angular and inclined at one end and curved at the other end, as shown in Fig. 2.

Elongated apertures that are curved at each end and inclined relative to the heads and flanges of the abutting ends of rails are formed in the webs of the rails, as shown in Fig. 3.

H is a key adapted to serve as a screw-bolt and nut. It has an enlarged conical extension and angular head J at one end and a lateral hook-shaped extension K at the other end, and the end of said extension is inclined to serve as a wedge to engage an inclined plane *c* on the face of the splice-bar A, as required to draw and bind together the two splice-bars that overlie the webs of abutting ends of rails, as shown in Figs. 5 and 6. The outer face of the hook-shaped extension is convex and adapted to enter and engage the arcs *d* at the circumference of the depression and inclined plane *c* around the aperture *b* in the splice-bar A, and *m* is a groove in said convex face of the part K, adapted to admit the points *f* to enter and fasten the key, so as to require applied force to rotate the key and wedge either backward or forward on the inclined plane *c*.

In the practical use of my invention the hook-shaped ends K of the keys H are first passed through the elongated apertures in the splice-bar A<sup>2</sup> and that bar then placed in position to allow the hook-shaped end to pass through the apertures in the webs of the rails and the coinciding apertures in the splice-bar A, that overlies the webs of the rails. The keys H are then turned by means of a wrench placed on their heads or in any other suitable manner, so that the inclined wedge-shaped faces of the ends of the hook-shaped extensions K will overlie the inclined planes *c*, as required to draw and lock all the overlying parts together by advancing the wedge-shaped faces of the ends of the keys upward on the inclined planes as far as they can be forced and as required to lock and fasten the keys by being engaged by the reëntering points *f* or the arcs *d* at the circumferences of the depressions and inclined planes *c* in the face of the splice-bar A. To unlock a railway-joint thus constructed, the keys H must be turned

in a reverse way relative to the inclined planes.

Having thus described the construction and function of each part, the practical operation and utility of my invention will be readily understood by persons familiar with the art to which it pertains; and

What I therefore claim as new, and desire to secure by Letters Patent therefor, is—

10 1. In a railway-rail joint, a splice-bar having oblong apertures, circular depressions and inclined planes in the outside surface and around the apertures and adapted to engage and fasten a key and a key having a head at  
15 one end and an elbow-shaped lateral extension at the extremity of its other end adapted to engage the inclined planes in the circular depressions in the face of the splice-bar in the manner set forth for the purposes stated.

20 2. A splice-bar having oblong apertures, depressions and inclined planes contiguous to the apertures and arcs and reëntering points at the circumferences of the inclined planes, in combination with a mating splice-  
25 bar, the abutting ends of rails and keys having hook-shaped ends adapted to engage the inclined planes and the arcs and reëntering points at the circumferences of the inclined planes in the manner set forth for the purposes stated.  
30

3. The key for locking railway-rail joints

consisting of a round central body portion, an angular head at one end and a hook-shaped extension at the extremity of the other end that terminates in a wedge-shaped face adapted to engage a circular inclined plane in the face of a splice-bar in the manner set forth for the purposes stated.

4. A splice-bar for railway-rail joints having oblong apertures for the passage of keys, inclined planes *c* around said apertures and arcs *d* and reëntering points *f* at the circumferences of said inclined planes, as shown and described for the purposes stated.

5. A railway-rail joint comprising two splice-bars having oblong apertures and adapted to overlies the webs of two abutting rails, inclined planes around the oblong apertures in one of the splice-bars and arcs and reëntering points at the circumferences of said inclined planes and keys having angular heads and hook-shaped extensions at the ends of their body portions and wedge-shaped faces at the ends of the hook-shaped parts and convex faces on the outer surfaces of the hook-shaped parts, all arranged and combined to operate in the manner set forth for the purposes stated.

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Witnesses:

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