H. W. CAPPELL.
Rail-Joint.

No. 217,337. Patented July 8, 1879.

Fig.—1.

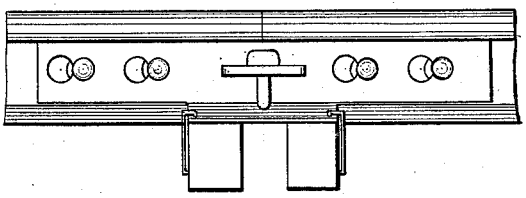


Fig.—2.

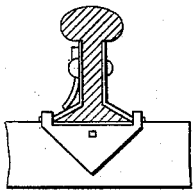


Fig.—3.

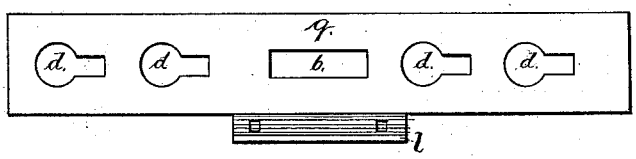


Fig.—4.

Fig.—5.

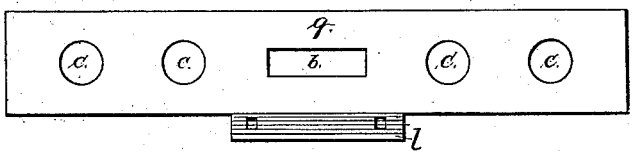


Fig.—6.

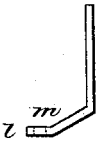


Fig.—7.

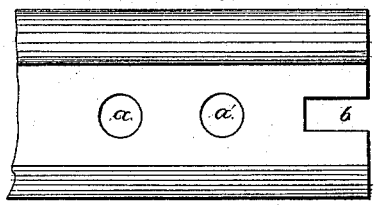


Fig.—8.

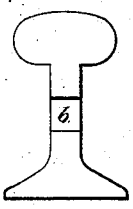


Fig.—9.

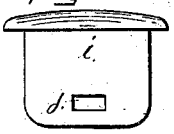


Fig.—10.

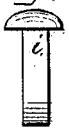


Fig.—12.

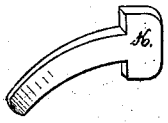


Fig.—13.

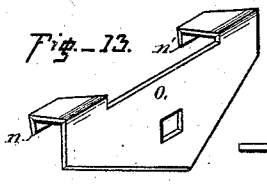


Fig.—11.

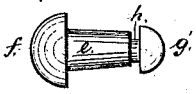
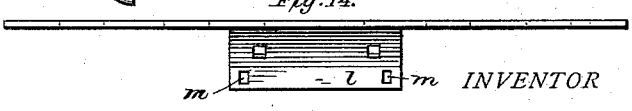


Fig. 14.



WITNESSES:

Samuel C. Brown

Charles W. Roberts

INVENTOR

Henry William Cappell

per Lewis & Bickel ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY W. CAPPELL, OF NEW LISBON, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO CHARLES CAPPELL, OF ST. PETERSBURG, PENNSYLVANIA.

IMPROVEMENT IN RAIL-JOINTS.

Specification forming part of Letters Patent No. **217,337**, dated July 8, 1879; application filed March 31, 1879.

To all whom it may concern:

Be it known that I, HENRY WILLIAM CAPPELL, of New Lisbon, in the county of Columbiana and State of Ohio, have invented a new and useful Improvement in Railroad-Rail Joints, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side view of my improved railroad-rail joint; Fig. 2, a transverse section of same. Figs. 3 to 6 represent front and end views of the splice-plates. Figs. 7 and 8 show a side and end view of the railroad-rail, and Figs. 9 and 10 a side and end view of the key. Fig. 11 shows the double-headed bolt. Fig. 12 is a perspective view of the pin. Fig. 13 is a perspective view of the clamp. Fig. 14 is a plan view of the splice-plate.

Similar letters of reference indicate corresponding parts in the drawings.

The object of my invention is to furnish a device by which the ends of railroad-rails may be firmly connected, allowing a longitudinal movement for expansion and contraction, but preventing any lateral or vertical motion.

The rail to which my invention is applied is of that class known as the "T-rails," constructed with a series of holes, *a a'*, and a parallel-sided central slot, *b;* and to securely unite the adjacent ends of each rail I use on either side of the joint flat splice-plates, one of which is provided with holes *c c c c*, and the other has corresponding key-hole-shaped slots *d d d d*, for the insertion of the double-headed bolts. The double-headed bolts are constructed with tapering bodies *e*, and provided with large and small heads, *f* and *g*, and circumferential grooves *h* underneath their smaller head *g*. The bolts are made with the tapering or conical bodies, in order that they may the more securely fit into the rail and allow a greater neatness in fit. Said bolts are inserted through the holes *c c c c* of the splice-plates, and through those of the rails, and through the circular portion of the apertures *d* in the splice-plate, the groove forming a short neck between the small head and body of the bolt, allowing the key-hole-shaped slots of the latter splice-plate, when moved lengthwise into position, to encircle the neck of the bolt and firmly clamp the rails between the splice-plates. The holes in the rails being somewhat larger than the body of the bolt permits a longitudinal motion for expansion and contraction.

The splice-plates and bolts being arranged in proper relation, as before described, the flat oblong-headed key *i*, having at or near its smaller end a hole, *j*, is passed through the parallel-sided central slots, *b*, of both rails and plates, and the pin *k* is then inserted and made to enter the hole in the key, by which the several parts are substantially held in their proper relation.

The projecting foot-pieces or flanges *l* of the splice-plates extend over the base of the rail and rest upon the ties, and are provided with holes *m'*, in which the hooks *n' n'* of the triangular-shaped clamps *o* are inserted, said clamps being securely spiked to the ties, holding the rails in position, and preventing, in connection with the above-described double-headed bolts and key, any vertical or lateral movement.

Having thus briefly described my invention, I claim—

1. The combination of the T-rail with the splice-plates provided with the key-hole-shaped slots *d d* and central slot, *b*, projecting flanges, center key, and bolts, substantially as set forth.

2. In a railroad-rail joint, the combination of the double-headed bolts provided with the tapering body *e*, circumferential groove *h*, large head *f*, and smaller head *g'*, with the splice-plates having the apertures *b*, *c*, and *d*, the key *i*, and bolt *k*, as shown and described.

3. In combination with a railroad-rail and splice-plates extended to lap upon the flange of the rail and the sleeper, the triangular-shaped clamps *o*, substantially as and for the purposes set forth.

HENRY WILLIAM CAPPELL.

Witnesses:

CHAS. B. BICKEL,

JOSIAH B. POOR.