

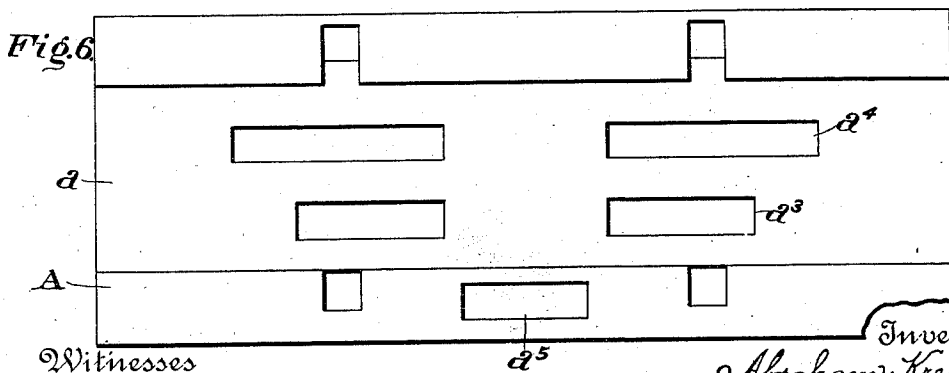
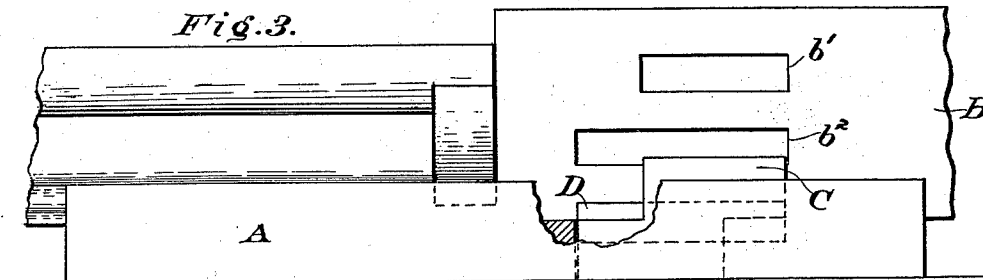
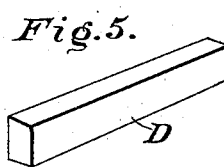
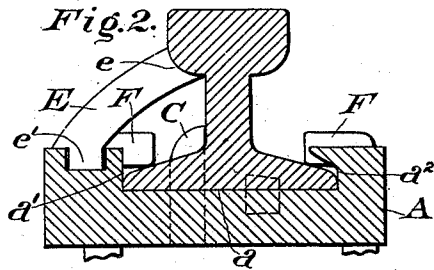
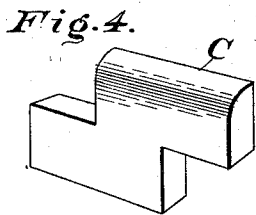
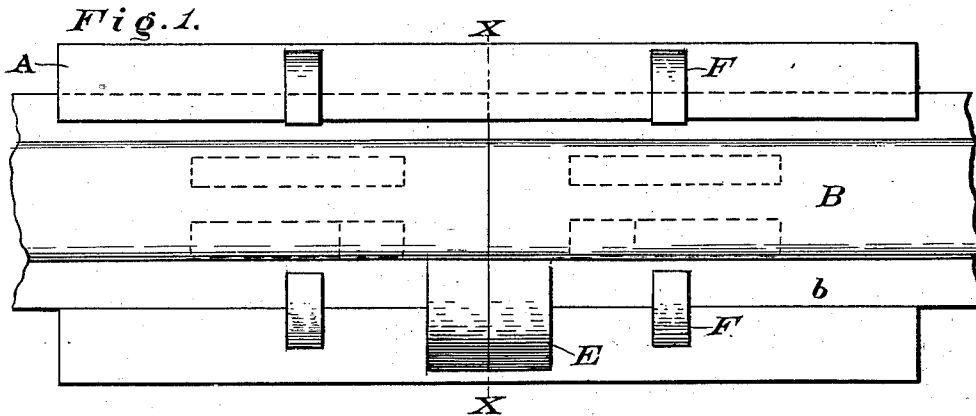
No. 692,152.

Patented Jan. 28, 1902.

A. KREPS.
DETACHABLE KEY RAIL JOINT.

(Application filed Oct. 1, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

ABRAHAM KREPS, OF FREEDOM, PENNSYLVANIA.

DETACHABLE-KEY RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 692,152, dated January 28, 1902.

Application filed October 1, 1901. Serial No. 77,199. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM KREPS, a citizen of the United States, residing at Freedom, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Detachable-Key Rail-Joints; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to detachable-key rail-joints; and its object is to secure the ends of meeting railroad-rails upon a common joint-chair against either longitudinal, lateral, or tilting displacement.

I accomplish the object stated in the following manner and by the employment of the instrumentalities stated. With reference to the lateral displacement of the rail ends, I prevent this by constructing a joint-chair grooved lengthwise. The longitudinal displacement I guard against by slotting the surface of the chair constituting the bottom of the groove and correspondingly slotting the lower surface of the flange of each rail and providing detachable keys to engage the slots in both rail and chair. The possible tilting of the rail is resisted by curved side struts or brace-blocks, also detachable, which oppose any tilting effect in one direction, while the customary spike passing through the chair into the tie opposes any tilting effect in the opposite direction.

Each constituent element of my invention is described in detail, and its individual office, together with the mode of operation of the whole, is fully explained hereinbelow.

Of the accompanying drawings, throughout which like letters designate like parts, Figure 1 is a top plan view of two meeting rails secured by my invention. Fig. 2 is a cross-section taken upon the line *xx* of the first figure. Fig. 3 is a side view showing one rail turned up to expose its bottom, also showing the detachable keys in place in their respective chair-slots. Fig. 4 represents the visible key detached. Fig. 5 represents the concealed key detached, and Fig. 6 is a plan

showing the bottom of the chair-groove and the relative positions of the key-slots.

Considering the drawings, letter A marks the joint-chair, lengthwise of which is formed a groove *a*, having a flat bottom surface, a perpendicular wall *a'* at one side, and a downwardly and outwardly inclined side wall at the other side, (marked *a''*.) The shape of the groove is best shown in Fig. 2, and it will be noted that one edge of the flange of the rail engages the inclined wall of the groove *a* in the chair.

In Fig. 3 the bottom of one rail is shown. The rail is designated by the letter B and its flange by the small letter *b*. The slot for the visible key is marked *b'*, and the groove for the concealed key is throughout referred to by the term *b''*. It will now be understood that if the rail is turned down into the groove in the chair the visible key C will pass through the slot *b'* and the concealed key D will enter the slot *b''*.

Fig. 4 shows the partly-cylindrical form given the top of visible key C in order that when the right-hand edge of the rail (see Fig. 2) is placed against the inclined wall of the groove and the bottom of the flange of the rail turned down into the chair-groove the visible key will pass into its slot without hindrance. The curved top of key C is usually to be seen projecting above the flange of the rail and closely against the web thereof, as in Fig. 2.

Key D (mentioned above and shown detached in Fig. 5) is called by me a "concealed" key, although it is believed to be within the scope of my invention to slot the rail quite through the flange, and thus insert a key D, which would under those circumstances become visible when all parts are assembled.

Key C ordinarily possesses the irregular shape in Fig. 4. The rectangular or lower portion fits the slot *a''* in the chair, and the upper part of the key, which has the curved top, passes through the rail-flange slot *b'*, as explained. The office of the two detachable keys C and D is to prevent longitudinal displacement of the rail. By constructing key C of the shape illustrated that portion which enters the chair-slot is partly covered and held in place by the bottom of the rail. It is my practice to allow some play or difference in

size between these various keys and their slots, to prevent expansion and in order that the parts may be put together without difficulty. It is not necessary that a great deal of play should be left, and no considerable jarring or hammering upon the keys results in use.

The chair slot or recess for the concealed key D is marked a^4 .

10 After the keys have been placed in position in the chair-slots described as formed to receive them the rail is turned upon the edge, engaging the inclined side of the chair-groove until it covers and incloses the keys. It is 15 during this turning movement that the curved side strut or brace E is placed in position. Figs. 1 and 2 present the usual form of these side braces. Each has a grooved upper end e and a rectangular tenon e' . The tenons fit 20 a mortise a^5 in the joint-chair. (See Fig. 6.) The office of the curved side braces is to prevent tilting or like movement of the tread of the rail toward the side on which the braces are located, and it will be noted 25 that the curved groove in the upper end of the brace E engages the lower bulge of the rail. The customary spikes F F, driven through the chair, as illustrated, hold the rail and prevent any tilting effect in the opposite 30 direction. The rails are thus effectually locked against spreading by the use of my invention either when they are employed on curves or on straight portions of the track.

I do not limit myself to the precise form 35 drawn of any part, but may modify one or the other of those parts to meet certain conditions of railway service or requirements.

Having thus described my invention, what I claim, and desire to secure by Letters Patent 40 of the United States, is—

1. In a detachable-key rail-joint, the combination of a joint-chair grooved lengthwise and provided with key-slots at the bottom of the groove, a rail having corresponding key- 45 slots formed in its bottom, detachable keys

fitting the said slots and passing both into the chair-slots and into the rail-slots thereby preventing longitudinal movement of the rail, the said chair and rail being adapted to be 50 spiked to a tie, substantially as described.

2. In a detachable-key rail-joint, the combination of a joint-chair and means for holding the flange of a rail on the chair against lateral displacement, the said joint-chair being provided with key-slots, a rail having corresponding key-slots in its bottom, keys fitting the said slots and passing into the chair-slots and into the rail-slots thereby preventing longitudinal movement of the rail, and a detachable side brace engaging both the said 60 joint-chair and the upper portion of the rail to prevent tilting and spreading of the rails, substantially as described.

3. In a detachable-key rail-joint, a key C having a lower rectangular block portion 65 joined to an upper rectangular block portion, one end of each block projecting beyond the corresponding end of the other block, substantially as described.

4. In a detachable-key rail-joint, the combination of a grooved joint-chair, the said groove having one perpendicular and one downwardly and outwardly inclined side, the bottom of the said groove being provided with key-slots, a rail having corresponding key- 75 slots, detachable keys fitting the slots and passing into both the chair-slots and rail-slots thereby preventing longitudinal movement of the rail, the said chair and rail being adapted to be spiked to a tie, and detachable 80 side braces engaging both the said joint-chair and the upper portion of the rails to prevent tilting or spreading of the rails, substantially as described.

In testimony whereof I affix my signature 85 in presence of two witnesses.

ABRAHAM KREPS.

Witnesses:

JACOB P. BRANDT,
JESSE R. MCKEE.