(No Model.)

H. A. SEYMOUR.

RAIL JOINT AND CHAIR.

No. 558,527. Patented Apr. 21, 1896.

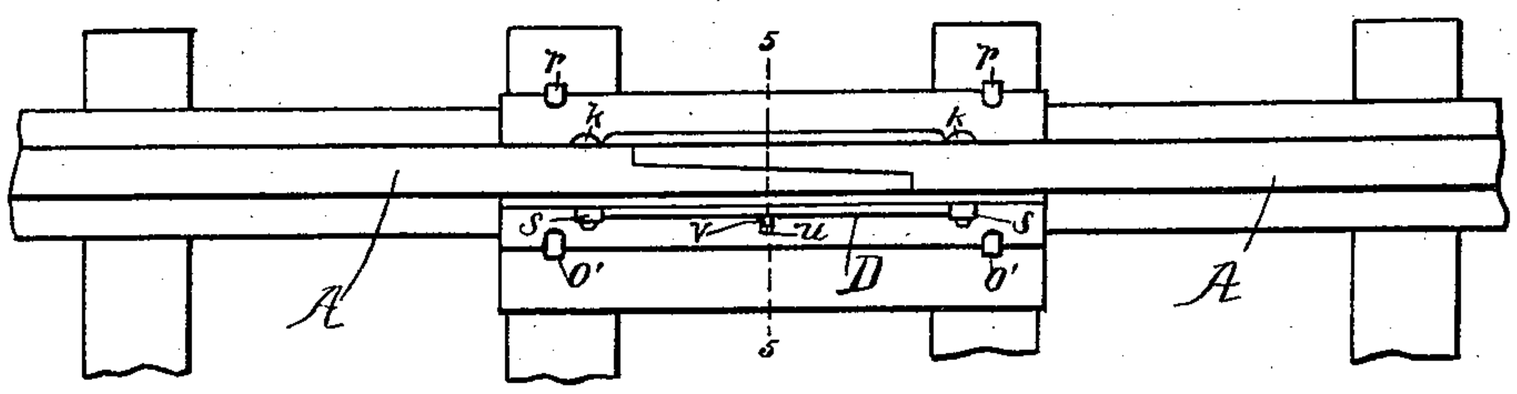

Fig. 1.

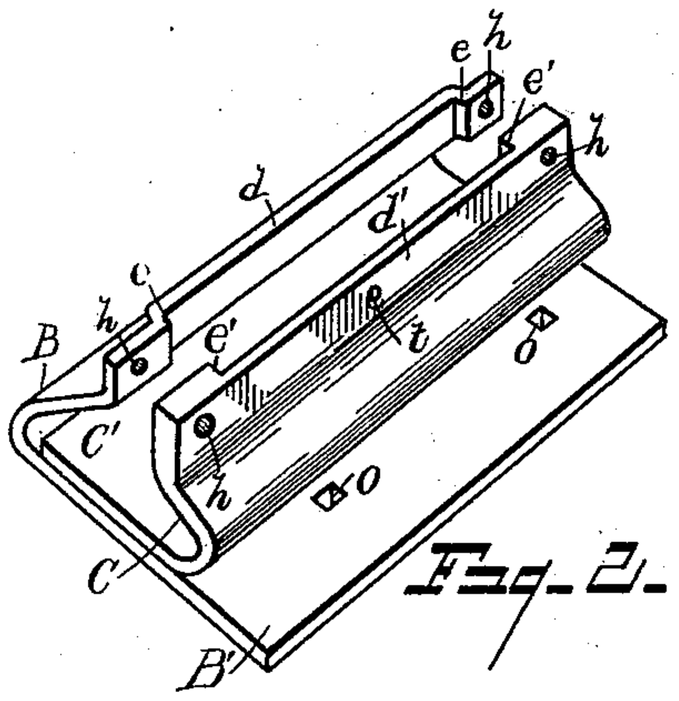

Fig. 2.

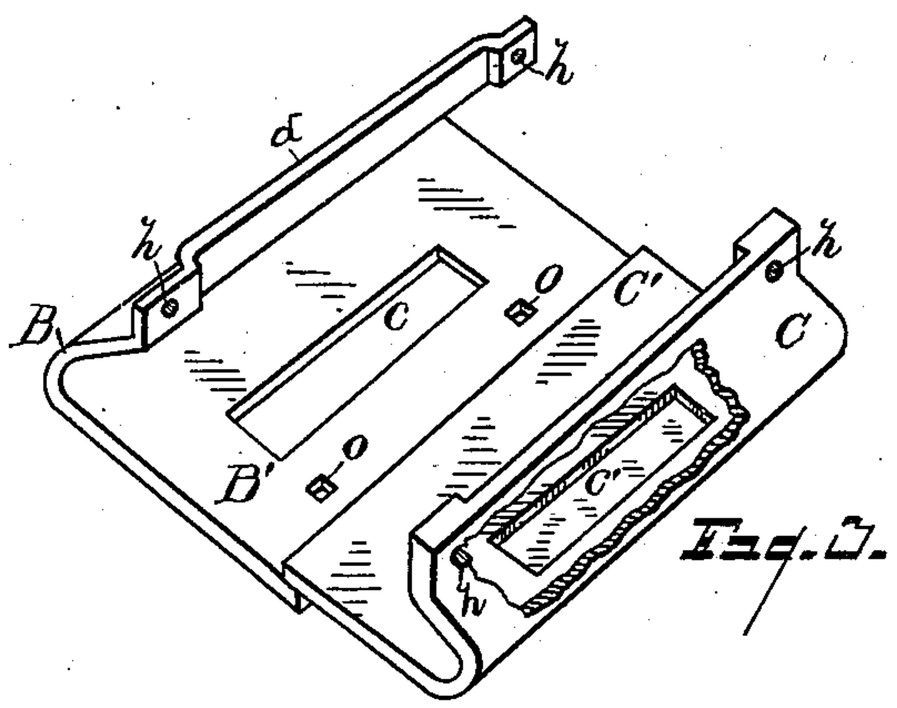

Fig. 3.

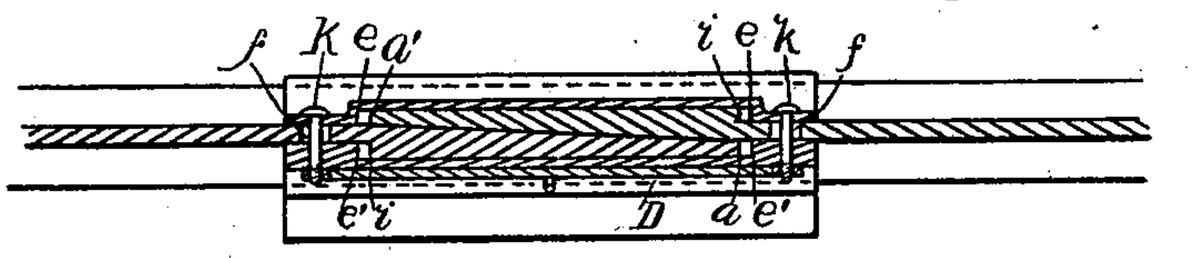

Fig. 4.

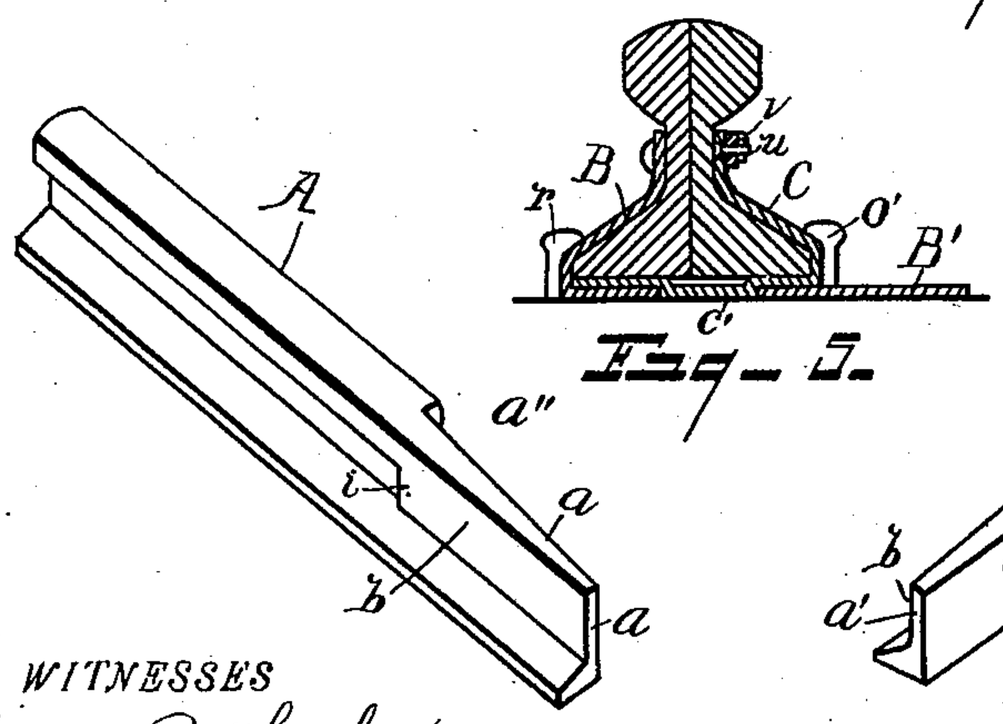

Fig. 5.

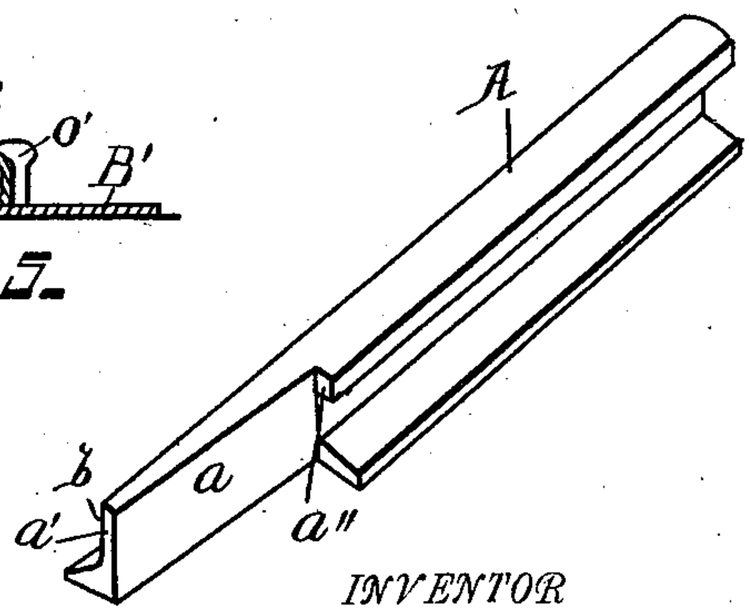

Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

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RAIL JOINT AND CHAIR.

SPECIFICATION forming part of Letters Patent No. 558,527, dated April 21, 1896.

Application filed September 21, 1895. Serial No. 563,219. (No model.)

To all whom it may concern:

Be it known that I, HORACE A. SEYMOUR, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Rail Joints and Chairs; 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.

This invention relates to rail joints and chairs for railways; and it consists in the construction and arrangement of parts as hereinafter more fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide a lap-joint for the meeting ends of the rails, in which the construction is such as to effect a continuity of the rail, and a further arrangement of cheek-plates or a two-part chair for embracing said joint, so as to securely retain the ends of the rail in position to allow for expansion and contraction of the rails, to relieve the bolts coupling the plates and rails from the strain of such expansion and contraction, to render said chair self-locking when in proper position, and to obviate the springing or tipping of the rail by the pressure of the wheels thereon, which object is attained by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan view showing my improved rail joint and chair. Fig. 2 is an enlarged perspective of the chair with the rails removed. Fig. 3 is a like view with the plates of the chair separated. Fig. 4 is a horizontal section through the rail-joint and chair-plates, as shown in Fig. 1. Fig. 5 is a vertical transverse section on line 5 5 of Fig. 1, and Fig. 6 is an enlarged perspective showing the beveled ends of the rails which form the joint.

Referring to the letters of reference, A designates the rails, the meeting ends of which are beveled, as at *a*, and lap one past the other, the outer ends of the bevel terminating in a square shoulder *a'*, which is adapted to abut against the shoulder *a''* in the opposite rail, forming, when said beveled ends are placed together, an overlapping joint giving the effect of a continuous rail, as shown in Fig. 1. The abutting shoulders *a' a''* of the meeting ends prevent the beveled ends from crowding past one another by the expansion of the rails, and also prevent the rolling-stock from pounding down the beveled end, as would be the case were said bevel continued to an acuminated point.

It will be seen that the web of the rail, opposite the beveled face thereof, is built out, as at *b*, flush with the outer edge of the tread, which construction gives the strength of the added thickness to the web at this point and affords a firm support for the beveled end of the rail from the tread through to the foot thereof. The angle of the bevel *a*, as will be seen, is very slight, being equal only to the thickness of the web of the rail. This arrangement prevents the joint spreading to any perceptible extent as the rails contract.

The chair in which the rail-joint is seated consists of two plates B C. Of these the outer plate B is provided with an extending base B', which projects well beyond the foot of the rail and upon the outside thereof, affording a brace which prevents the rail from tipping by the pressure upon the tread thereof. Said plate B curves around the foot of the rail upon the inside and extends upward, having a vertical plate or cheek *d*, which embraces the inner face of the web of the rail, the base portion B' of said chair-plate having a central rectangular aperture *c* therethrough.

The plate C, forming the opposite side of the chair, is curved to embrace the outer flange of the foot of the rail, and is provided with a base-plate C', which extends under the rail and upon which the foot of the rail rests, said base portion of the plate having a depressed rectangular rib *c'*, which is struck out from the under face thereof and which enters the rectangular opening *c* in the base of the plate B when said plates are placed together, as shown in Fig. 2, thereby securely locking said plates in place when the weight of the rail is bearing thereon, as shown in Fig. 5, in which position the cheeks *d d'* of said plates embrace the web of the rail and hold the joint securely in place even though the bolts passing through said plates and rail be removed. It will be seen that the inner

face of the cheeks of said plates, near each end, are provided with shoulders *e e'*, respectively. It will also be seen on referring to Figs. 4 and 6 that the added thickness *b* to the web of the rail adjacent the point of bevel of the joint forms a shoulder *i*, extending beyond the plane of the web at one end of said joint, and that the beveled end of the rails *a'* forms a like shoulder at the opposite end of said joint. It will also be seen that the meeting ends of said rails are provided with a slotted opening *f*, extending through the web thereof remote from the beveled ends of the rail and that the opposed cheeks of the chair-plates, near each end, are provided with registering apertures *h*. By this arrangement, when the chair is placed in proper position upon the joint and tie-bolts *k* are passed through the apertures *f* in the ends of said rails, the shoulders *e e'* of said plates standing adjacent to the shoulders *i a'* on the web of the rail, provision is made for the expansion and contraction of the joint without bringing the strain thereof upon the bolts *k*, and also for equalizing such expansion and contraction between the several joints of the rails, for should the rails contract so as to bring the shoulders *e i* at any one joint into contact further contraction at that joint is restrained, compelling the succeeding joint in the rail to bear its portion of the contraction, and so on through the line, the slotted opening *f* in the rails, through which the bolts *k* pass, being of such length as to permit said shoulders to come into contact before the ends of said openings engage said bolts, thereby throwing the strain from the bolts upon the chair. In case of the expansion of the rails the shoulders *a* thereof are forced against the shoulders *e'* of the plates, thereby taking the strain off from the bolts *k* in this direction. The embracing-cheeks of the chair-plates also keep the rails in perfect alinement, so that in the contraction or expansion thereof they cannot possibly be thrown out of line so as to make an opening in the joint in which the flange of the wheel might possibly engage, making the joint absolutely safe in this respect. It will also be seen that the apertures *f*, which receive the bolts *k*, are not formed through the meeting ends of the rails at their point of bevel, so as to obviate any weakening of the tread at this point. It will be seen, too, that the plates of the chair extend beyond the beveled ends of the rails in both directions, and that said plates pass under the foot of the rail, forming a shoe therefor, which so confines and supports the joint as to render the rail as strong at this point as at any point in its length.

The extending base B' of the plate B is provided with apertures *o* to receive the spikes *o'*, which are driven therethrough into the ties, the head of the spikes lapping onto the curved face of the plate C, additional spikes being driven on the opposite side of the chair, as at *r*, the heads of which engage the beveled face of the plate B.

To provide for locking the nuts *s* of the bolts *k*, there is employed a plate D, which lies horizontally against the outer face of the cheek *d'* of the plate C, the ends of which engage square faces on said nuts and prevent their turning, the plate being held in place by a bolt *v* passing through the aperture *t* in the chair-plate C and through the locking-plate D, receiving through its outer end a key or cotter *u*, which securely retains the plate D in position and renders it readily removable when desired.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the joined beveled ends of the rails, of the chair confining said joint, said chair consisting of the opposed curved plates conforming closely to and extending around the foot of the rail and embracing the web thereof, one of said plates having an opening in the base and an extended base portion projecting well beyond the foot of the rail and the other a depression which fits into said opening to lock the plates together to prevent longitudinal movement thereof and the bolts passing through the ends of said plates and the web of the rail beyond the beveled end thereof.

2. The combination of the rails having the beveled ends and having the web reinforced opposite the beveled face forming opposite shoulders projecting from the web of the rail when said beveled faces are placed together, the opposed chair-plates embracing the joint formed by said beveled ends, said plates lying against the opposite side of the web of the rail and having shoulders which register with said shoulders on the web and extending into the path thereof to regulate the expansion and contraction of the rails at said joint, and the bolts passing through the plates of said chair and through the slotted opening in the web of said rails.

3. The combination of the rails having slotted openings through the web a beveled joint and provided with the lateral shoulders on the opposite side of said joint, the chair embracing said joint extending from the web of the rail formed of interlocking plates which extend onto the web of the rail and which are provided with shoulders which extend into the path of the shoulders on the web of the rail and the bolts passing through said plates and said slotted openings for binding said plates to the rail to permit of the longitudinal movement thereof, substantially as set forth.

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

HORACE A. SEYMOUR.

Witnesses:

E. S. WHEELER,

HORACE R. WHEELER.