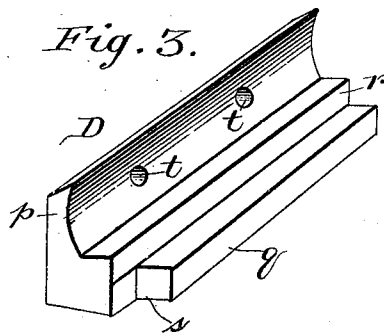
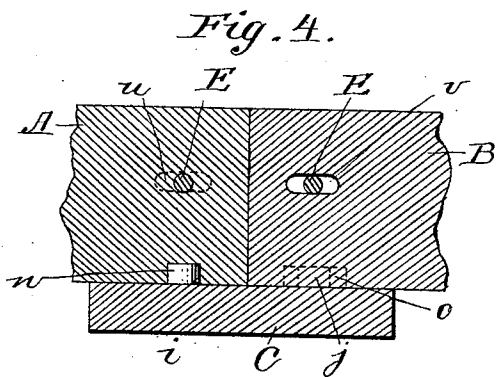
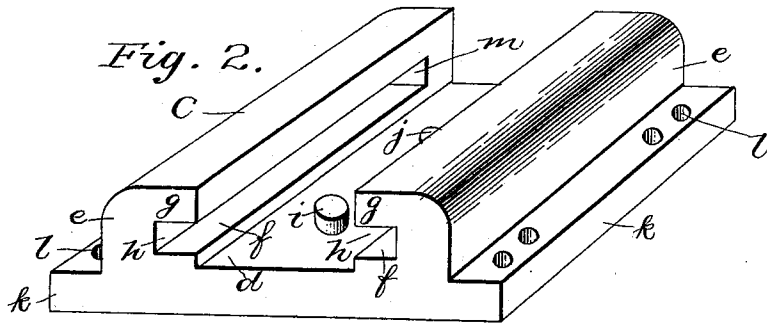
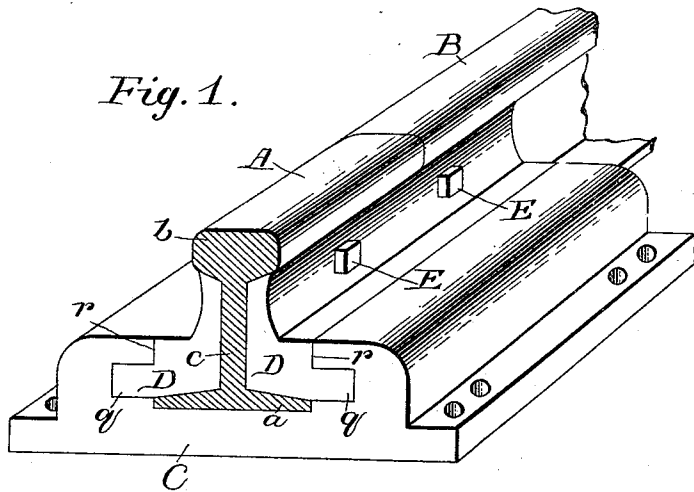


(No Model.)

A. F. NAYLOR.
RAILROAD CHAIR.

No. 520,534.

Patented May 29, 1894.



Witnesses
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UNITED STATES PATENT OFFICE.

AMOS F. NAYLOR, OF BRANDYWINE HUNDRED, DELAWARE.

RAILROAD-CHAIR.

SPECIFICATION forming part of Letters Patent No. 520,534, dated May 29, 1894.

Application filed November 6, 1893. Serial No. 490,088. (No model.)

To all whom it may concern:

Be it known that I, AMOS F. NAYLOR, of Brandywine Hundred, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Railroad-Chairs, of which the following is a specification.

The improved chair is illustrated in the accompanying drawings, wherein—

Figure 1, is a perspective view of the chair showing the meeting ends of two rails located therein, and the keys for holding the rails in position. Fig. 2, is a perspective view of the chair. Fig. 3, is a perspective view of one of the fastening keys. Fig. 4, is a longitudinal vertical section through the chair and the rails therein.

A, B, are portions of two rails, each of which as usual has a base *a*, a tread *b*, and a web *c*.

C, is the chair which has a central depressed channel *d* of the same width as the base *a* of the rail, vertical longitudinal ribs *e, e*, horizontal ledges *f f* between the ribs *e e* and channel *d*, overhanging flanges *g g* extending inwardly from the ribs *e e* respectively and overhanging the ledges *f f*, respectively, whereby longitudinal rectangular grooves *h h* are formed between the said flanges and ledges, studs *i j* extending upwardly from the channel *d*, and external fastening flanges *k k* formed with suitable provisions (such as bolt-holes *l l*) for securing the chair to the ties or other part of the road-bed. The grooves *h h* do not extend the whole length of the chair and are open at one end only so that registering stops *m* are thereby formed. The chair with all its described accessories is preferably formed of a single piece of metal. The rails have at their adjoining ends recesses *n o* which fit over the studs *i j* respectively, so that the rails are thus properly positioned. When the rails are in place in the chair their bases fit in the channel *d* and the upper faces of their bases where contiguous to the ledges *f f* are on a level therewith.

D, D, are the fastening keys two in number, each as long as the chair. Each key rests directly on the base of the rail and against its web, and each key has a flange *p* which fits snugly under and entirely within the tread of the rail, thereby supporting the tread and at the same time being out of reach of the

wheel flanges; a rectangular tongue *q* which fits in one of the rectangular grooves *h*; and a vertical shoulder *r* which fits against the vertical inner wall of the chair flange *g*. In other words, when the key is in place it fills all the space between the chair and one side of the rail. The tongue *q* of the key does not extend the full length of the key, but has a recessed shoulder *s* which abuts against the stop *m* on the chair. The shoulder *s* and stop *m* insure the proper position of the key so that the bolt-holes *t* with which it is provided may register with the bolt-holes *u v* in the rails. These keys D, it will be noted, perform the function of ordinary fish-plates. Each key with its accessories is made of a single piece of metal.

E, E, are bolts for fastening the keys to the rails, and which extend through the bolt-holes *t u v*.

This improved chair with its fastening keys makes an effective and perfect rail joint. The rails and fastening keys are properly and readily positioned. The rails are held firmly both laterally and vertically so that there is no seesawing of the joint. The distance between the flanges *g g* is as great, at least, as the width of the rail base *a*, so that the rail can be simply dropped into place. The keys are easily slid in and out of position, thus facilitating the laying and replacing of the rails.

Several features illustrated in the drawings are susceptible of modification. The chair is shown as provided with bolt-holes for fastening it to two adjacent ties so as to form a suspension joint, but this is not essential. The chair is shown provided with two studs *i j*, whereas one of the studs, as *j*, may be omitted. To indicate this possible omission, the stud *j* in Fig. 4, is shown in dotted lines. In case both studs *i j* are employed, it is usually desirable that one of the rail recesses, as *o*, should be elongated to provide for expansion and contraction. The bolt-holes *u v* of the rails are, as is customary, shown elongated, but this is not necessary when the rail recess, as *n*, fits closely over the stud, as *i*, and to indicate that in such case the elongation is unnecessary the elongation of the bolt-hole *u* is shown in Fig. 4, in dotted lines. More than two bolts E, E, can be used, but one of the ad-

vantages of the invention is that two bolts are all that are necessary, and hence two bolt-holes only are shown.

I claim as my invention—

5 1. A railroad rail having base, web, tread, and recess in the bottom of its base, a rail chair having a central depressed channel *d* of the same width as the rail base, vertical
10 ribs *e e* on either side of said channel, horizontal ledges *f f* between said channel and said ribs *e e* respectively, the surfaces of said
15 ledges being flush with the upper surface of the rail base, overhanging flanges *g g* extending inwardly from said ribs *e e* whereby rectangular longitudinal grooves *h h* are formed
20 between said flanges and said ledges, said flanges *g g* having vertical inner walls and the distance between said inner walls being as great at least as the width of said channel
25 *d*, and a stud *i* projecting upwardly from the face of said channel and engaging the recess in the bottom of the rail, in combination with
fastening keys *D, D*, which occupy the space between the rail on each side thereof and said
30 chair, each key seating directly upon the rail base, and each key having a longitudinal flange *p* which fits under the rail tread, a longitudinal rectangular tongue *q* which fits in one of said grooves *h*, and a longitudinal vertical
35 shoulder *r* which fits against the inner vertical wall of one of said flanges *g*, substantially as set forth.

2. Two abutting rails, each having base, web, tread, and a bolt-hole, and one at least
35 having a recess in the bottom of its base, a rail chair having a central depressed channel *d* of the same width as the rail base, vertical ribs *e e* on either side of said channel, horizontal ledges *f f* between said channel and
40 said ribs respectively, the surfaces of said

ledges being flush with the upper surfaces of the rail bases, overhanging flanges *g g* extending inwardly from said ribs *e e* whereby rectangular longitudinal grooves *h h* are formed
45 between said flanges and said ledges, said grooves however being of a length less than the length of the chair so that a registering stop *m* is formed at one end of each groove, said flanges *g g* also having vertical walls
50 which are separated by a space as wide at least as said channel *d*, and a stud *i* projecting upwardly from the face of said channel and engaging the recess in the bottom of the rail provided with a recess, in combination
55 with fastening keys *D, D*, which occupy the space between the rails on each side thereof and the chair, each key seating directly upon the bases of the two rails, each key having a longitudinal flange *p* which fits under the
60 treads of the rails, said flange having bolt-holes which register with the bolt-holes in the rails, each key having a longitudinal rectangular tongue *q* of a length less than the length of the key, so that a recessed shoulder
65 *s* is formed at one end thereof, said tongue fitting in one of said grooves *h* with its shoulder abutting against one of said registering stops *m*, and each of said keys having a longitudinal vertical shoulder *r* which fits against
70 the inner vertical wall of one of said flanges *g*, and bolts which extend through the bolt-holes in said keys and rails, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

AMOS F. NAYLOR.

Witnesses:

HENRY C. CONRAD,
THOMAS GIFFIN.