

No. 722,660.

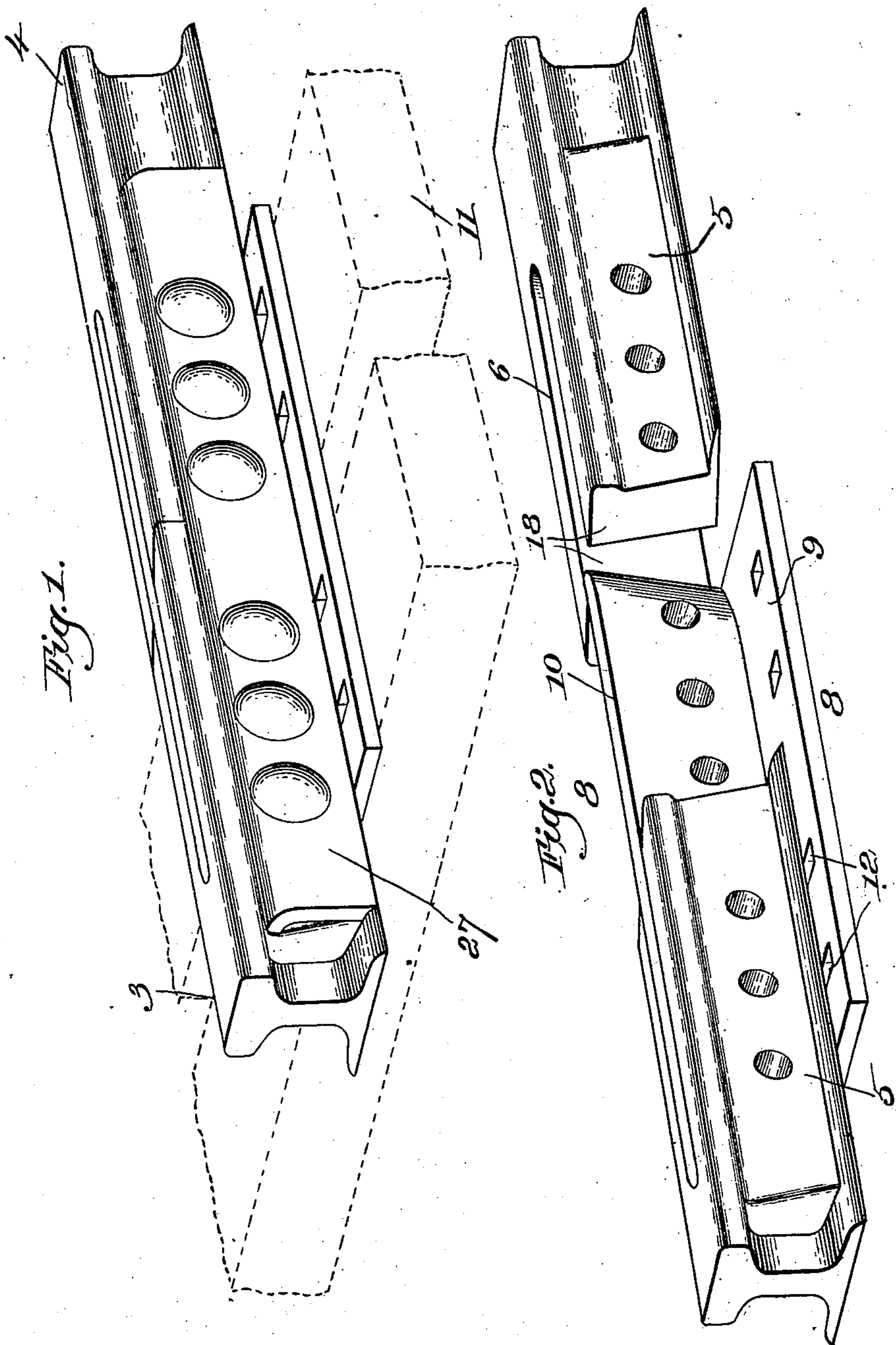
PATENTED MAR. 17, 1903.

A. H. AMBLER.
RAIL JOINT.

APPLICATION FILED MAY 25, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.
Adolph H. Kiser
Thomas J. Spummond

Inventor.
Alfred H. Ambler,
By Wesley Gregory,
Att'y.

No. 722,660.

PATENTED MAR. 17, 1903.

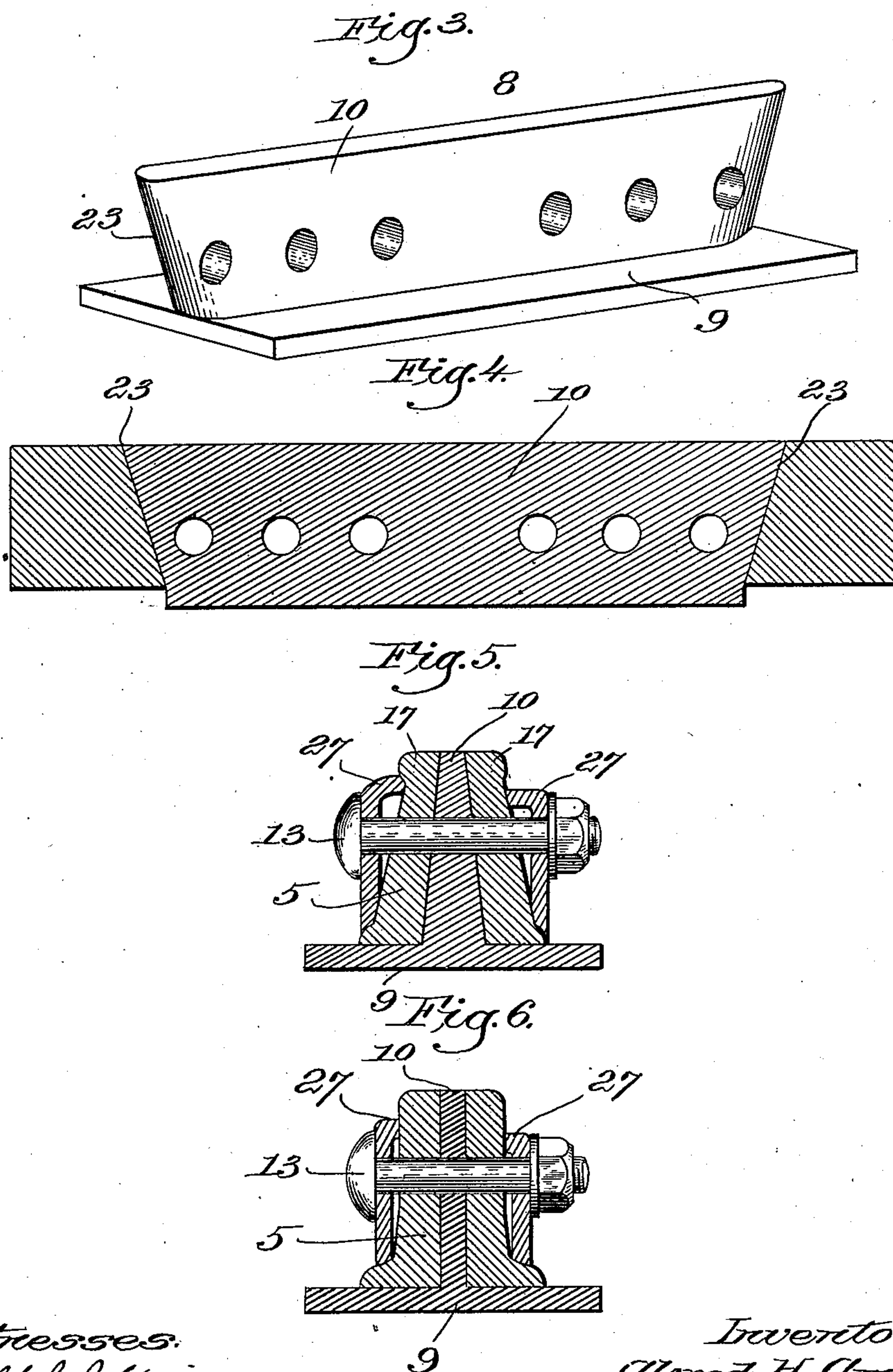
A. H. AMBLER.

RAIL JOINT.

APPLICATION FILED MAY 25, 1901.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
Adolph Kaiser
Thomas J. Drummond

Inventor.
Alfred H. Ambler,
by Lewis & Gregory,
Attys.

UNITED STATES PATENT OFFICE.

ALFRED H. AMBLER, OF WINTHROP, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN BOLT, OF HOLYOKE, MASSACHUSETTS.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 722,660, dated March 17, 1903.

Application filed May 25, 1901. Serial No. 61,873. (No model.)

To all whom it may concern:

Be it known that I, ALFRED H. AMBLER, a citizen of the United States, residing at Wintthrop, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Rail-Joints, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

10 In the ordinary construction of rail-joint the rail-sections are made with square ends which abut, and fish-plates are used to unite the rail-sections. With this construction, however, when the rails contract slightly, due to changes in temperature, the abutting ends of the rails separate to some extent, thus leaving a space or gap between the same, which as the cars pass over the rail-joint occasions considerable jar. This is augmented by the fact that as the wheels of a heavily-loaded train approach the end of any rail-section that end of the rail-section is depressed slightly below the abutting end of the next rail-section, so that as the car-wheels pass from one rail-section to the other they strike against the upper edge of the last-named rail. This continual jar is not only ruinous to the track structure, but also to the rolling-stock.

30 It is the object of my invention to provide a novel form of rail-joint which will obviate this jar and shock due to the present construction of rail-joint, and this I accomplish by providing the meeting ends of the rail-sections with vertical slots extending through the same and uniting said sections by a splice-bar comprising a base-plate upon which the adjacent ends of the rail-sections rest and a web or fin portion fitting the aligned slots in the rail end, said web or fin portion coming flush with the tread-surface of the rails and operating as a bridge-piece.

45 The rail-sections are securely bolted to the splice-bar by bolts passing through the webs of the rails and the fin of the splice-bar, and I preferably support the base portion of the splice-bar upon suitable ties. With this construction the two rail ends are rigidly held together, and since they both rest upon the base portion of the splice-bar the end of one rail-section cannot be depressed below the end of the adjacent rail-section.

Since the upper surface of the fin or web portion is flush with the tread-surface of the rail, a practically continuous unbroken tread-surface is provided, and even should the rail-sections separate the wheels will be supported upon the web of the splice-bar, thus avoiding any jar or shock. I also preferably make my slot in the end of the rails with inclined side walls, the said slot being wider at the base of the rail than at the tread-surface thereof, and the meeting ends of the rails will be thickened. With this construction the weight of the train passing over the rails tends to clamp the upper surface of the web of the splice-bar between the sides of the slotted rail.

In the drawings, Figure 1 is a perspective view of my improved rail-joint. Fig. 2 is a perspective view showing one of the rail-sections removed. Fig. 3 is a perspective view of the splice-bar. Fig. 4 is a longitudinal vertical section of the rail-joint. Fig. 5 is a vertical transverse section of my improved joint, and Fig. 6 shows a modification.

The two rail-sections are denoted by 3 and 4, respectively, and, as shown, said rail-sections are the ordinary T-rail, though I wish it understood that my invention is equally applicable to other styles of rails.

The abutting ends of the two rail-sections have their web portions thickened, as at 5, and said abutting ends are provided with the vertical longitudinal slots 6, which are preferably in alinement, said slots extending from the tread-surface of the rail to the base thereof.

The thickened portions 5 of the rail extend back some distance from the ends of the slots 6, as seen in Fig. 2, the purpose of which construction is to prevent the rail from becoming weakened by the slot therein.

The rail-sections are united by a splice-bar 8, said splice-bar comprising the base portion or plate 9 and the vertical web or fin portion 10. The base-plate 9 is preferably supported upon suitable ties, as 11, (see Fig. 1,) and has resting thereon the base portions of the ends of the adjacent rails, the said base-plate being provided with suitable holes 12 for the reception of spikes or similar means for fastening the same to the ties 11. Integral with the base-plate and extending vertically there-

from is the said web portion 10, which is shaped to fit the alined slots 6, the said web portion being of a depth equal to the height of the rail, so that the upper surface thereof comes flush with the tread-surface of the rail. Any number of suitable bolts 13 are passed through the thickened web portion 5 of the rails and the web or fin portion of the splice-bar, said bolts operating to securely hold the rail-sections together.

Since the two rail-sections are bolted to the fin portion 10 and since they rest at their meeting ends upon the base portion 9, it will be seen that the two rail-sections are rigidly connected together, and there is no possibility of the end of one rail-section being depressed below the end of the adjacent rail-section during the passing of a train thereover. Moreover, since the upper surface of the fin portion 10 comes flush with the tread-surface of the rail said fin portion operates as a bridge-piece which supports the wheels of the train during the time they are passing across any gap which may exist between the ends of the rails, thus preventing the shock occasioned by the gap in the ordinary railroad structure.

Although I may make the fin portion of my splice-bar with the parallel side walls, as shown in Fig. 6, in which case the slot 6 has parallel walls to fit the said web portion, yet in the preferred embodiment of my invention I make the said fin portion tapering, as shown in Fig. 5, the lower end thereof where it joins the base-plate 9 being wider than the upper surface thereof. In this instance the side walls of the slots in the meeting-rail ends will be inclined to fit the tapered or wedge-shaped construction of the fin portion. I find that this tapered construction of the fin portion 10 is of great advantage, for since the base portions of the two arms 18 on either side of the slot 6 are spread more than the upper portions thereof the structure acts somewhat as a truss, and the weight of the train passing over the rail tends to bring the upper portions 17 together, thus clamping the upper end of the web or fin portion 10 between the same. This construction prevents any possibility of the two side portions 18 of the rail spreading. I will also preferably make the ends of the fin portion 10 outwardly inclined, as shown at 23, Fig. 4, and the ends of the slot 6 will be inclined correspondingly, this construction adding strength to the rail-joint.

I may, if desired, have usual fish-plates either side of the webs of the rails and spanning the rail-joints, said fish-plates preferably being arched somewhat, as shown in Fig. 5, to thus aid in holding together the upper portions 17 of the slotted rails. I wish it understood, however, that the fish-plates are not absolutely essential to my invention, as the web portion 10 performs the function of the usual fish-plates, and therefore I may omit the fish-plates, if desired.

I may make the ends of the rails with square meeting ends, or I may make the ends of the rails with the inclined ends, as shown in Figs. 1 and 2.

Various changes may be made in the structure of the device without departing from the spirit of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rail-joint, two adjoining rail-sections, each having a vertical slot in its meeting end, said slots having non-parallel sides, a splice-bar rigidly secured to each of said rail-sections and uniting the same, said splice-bar comprising a base-plate and a vertical web or fin integral therewith, the base-plate supporting the ends of the rails and the web or fin fitting the slots in the rails.

2. In a rail-joint, two adjoining rail-sections, each having a vertical slot in its meeting end, a splice-bar uniting said rail-sections, said splice-bar comprising a base-plate and a vertical web or fin integral therewith, the base-plate supporting the ends of the rails and the web or fin fitting the slots and coming flush with the tread-surface of the rail and means for rigidly connecting the splice-bar and rail ends, the said web or fin operating to support the tread of the car-wheel as said wheel passes over the joint.

3. In a rail-joint, the rails having the web portions of the abutting ends thereof thickened and provided with vertical longitudinal slots having non-parallel sides, a splice-bar connecting said rails, said splice-bar comprising a base-plate on which the ends of the rails rest, and a vertical web or fin fitting the slots in the rail ends, and bolts or other securing means passed through the thickened end of each rail and the web of the splice-bar whereby the rails are rigidly connected.

4. In a rail-joint, the rails having the web portions of the abutting ends thereof thickened and provided with vertical longitudinal slots, a splice-bar connecting said rails, said splice-bar comprising a base-plate on which the ends of the rails rest, and a vertical web or fin fitting the slots in the rail ends and coming flush with the tread-surface of the rail, said web or fin operating as a bridge-piece, and bolts or other securing means passed through the thickened end of each rail and the web of the splice-bar whereby the rails are rigidly connected, the construction of the vertical web or fin being such that the weight of the train in passing over the joint tends to prevent the slotted ends of the rails from spreading.

5. In a rail-joint, rails having alined slots in their meeting ends, said slots having inclined walls, a splice-bar having a base on which the rails rest, and a vertical web or fin also having inclined sides to fit the alined slots, and means for connecting said splice-bar to each rail.

6. In a rail-joint, the rails having the webs

of their meeting ends thickened and provided with alined slots, said slots having inclined walls, a splice-bar having a base on which the rail ends rest and a vertical web or fin shaped to fit the slots in the rail ends, and bolts connecting the splice-bar and rails.

7. In a rail-joint, the rails having alined slots extended vertically through their meeting ends, said slots being wider at the base of the rail than at the tread-surface thereof, a splice-bar having a base-plate to support the ends of the rails, and a web or fin fitted in said slots and coming flush with the tread-surface of the rails, and means to connect said splice-bar with each rail.

8. A rail-joint comprising abutting rail-sections having alined vertical slots in their meeting ends and having the webs at said meeting ends thickened, the thickened portions extending beyond the end of the slots, a splice-bar having a base portion to support the ends of the rails, and a web or fin portion fitting the alined slots, and bolts passing through said rails and the web or fin of the splice-bar, the construction being such that the weight of the train passing over the joint tends to prevent the slots in the rail ends from opening.

9. A rail-joint comprising abutting rail-sections having alined vertical slots in the meeting ends thereof, said slots being wider at the base of the rail than at the tread-surface thereof, the webs of the rails at their meeting ends being thickened, and the thick-

ened portion extending beyond the end of the slot, a splice-bar having a base portion to support the ends of the rails, and a web or fin portion fitting said alined slots, said web portion coming flush with the tread-surface of the rail.

10. A rail-joint comprising two abutting rail-sections having slotted thickened portions at their meeting ends, and a splice-bar uniting said rail-sections, said splice-bar having a base portion to support the ends of the rails and a web or fin portion fitted to said slots, the ends of the slots being inclined and the ends of the web or fin having inclined portions to fit said inclined ends of the slots.

11. In a rail-joint, the rails having the web of the meeting ends thickened, vertical slots in said ends extending longitudinally of the rails, said slots being wider at the base portion of the rail than at the tread and having the ends thereof inclined, and a splice-bar uniting the rail ends, said splice-bar having a base portion on which the ends of the rails rest, and a web portion shaped to fit the slots, the upper edge of the web portion coming flush with the tread-surface of the rails.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED H. AMBLER.

Witnesses:

LOUIS C. SMITH,
GEO. W. GREGORY.