

(No Model.)

R. I. VERPLANCK.
RAILWAY RAIL JOINT.

No. 421,456.

Patented Feb. 18, 1890.

Fig. 1.

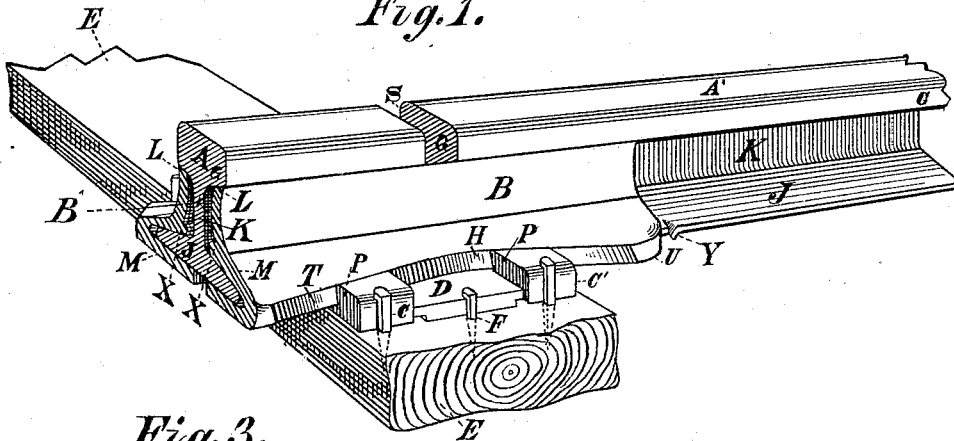


Fig. 3.

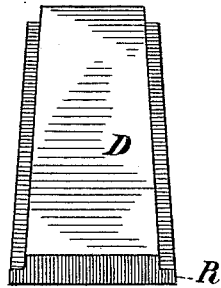


Fig. 2.

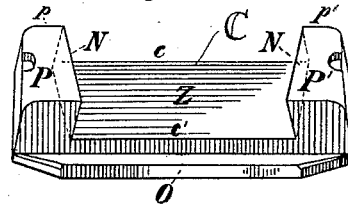
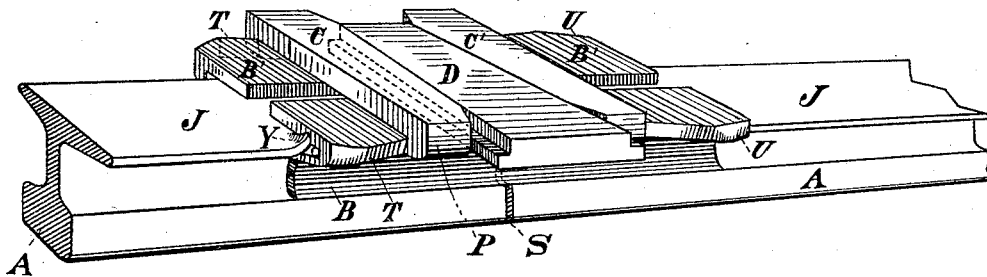


Fig. 4.



WITNESSES

James Mac Gregor
Edwin G. Day

INVENTOR

R. I. Verplanck

UNITED STATES PATENT OFFICE.

ROBERT I. VERPLANCK, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-THIRD
TO WILLIAM T. MAYER, OF SAME PLACE.

RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 421,456, dated February 18, 1890.

Application filed July 9, 1889. Serial No. 316,935. (No model.)

To all whom it may concern:

Be it known that I, ROBERT I. VERPLANCK, a citizen of the United States, residing at the city of Albany, in the county of Albany and State of New York, have invented a new and useful Railway-Rail Joint, of which the following is a specification.

My invention relates to improvements in the joints or connections of the line of rails on a railway; and the objects of said invention are, first, to hold the ends of adjacent rails firmly and rigidly together with a continuous level surface on which the wheels of the train may run smoothly; second, to make a joint that is easily applied and put into position and easily adjusted and tightened and as easily taken off, if desired; and, third, to make a joint that can be manufactured cheaply without loss of strength in the joint itself or impairing the strength of the rails in its application thereto. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters refer to similar parts throughout the several figures.

Figure 1 of the drawings represents the rail-joint in its position on the rails, A and A' being parts of two rails to be joined together at S by my said invention, with said rail A cut off at the end of the joint to show a cross-section view at that point. B and B' are two side and bed plates, each consisting of a single piece of metal rolled, cast, or swaged in the peculiar shape shown in said drawings, for the purposes of my invention. C and C' are two bottom or clamp plates to fit under the side and bed plates B and B' and hold them together, and each being made with projections or lips on the upper surface, as is more clearly shown in Fig. 2. D is a wedge to be placed between the two bottom or clamp plates C and C', holding them apart. In Fig. 1 said joint is shown as resting on an ordinary tie or sleeper E of the track and with the spike F driven behind the broad end of said wedge D, holding it in place when the joint is in position on the rails. Fig. 2 represents one of said bottom or clamp plates C and C'. Fig. 3 represents said wedge D, but turned upside down for convenience in drawing. Fig. 4 represents said joint in position

with the rails and joint turned over to show a bottom view. Said side and bed plates B and B' are similar in construction to each other, and are more particularly described as follows: The upper edges at L are made beveled or at an angle, so as to fit and supply a bearing under the top or upper member G of the rails. Said plates B and B' are preferably so constructed that said bearing-surface L shall not, when applied to the rails, extend under the top or upper members of the rails to the web or shank K of said rail, but leave a small space between the web or shank of the rail and the inner lateral surface of the said plates B and B', in order to allow the upper bearing-surface L upon the said plates to move closely to said web or shank when it is desired to tighten the joint. The outer lateral surface of said side and bed plates may be made curved from the upper to the lower edge, as shown in the drawings, or otherwise, and the inner lateral surface may or may not have a projection, as shown at X in Fig. 1 of the drawings, to increase the bearing on the upper surface of the lower member or flange of the rails. Each of said side and bed plates B and B' is provided with an opening or deep groove in its lower part on the inner side thereof, as shown at M in said Fig. 1. This opening is tapering, being broader at its mouth than at the bottom of the groove, and extends from end to end of the plate and forms a beveled bearing-surface to fit over and under the lower member or flange of the rails. This opening is also preferably so constructed that the said bearing-surfaces shall meet the lower member or flange of the rails before it enters to the entire depth of said opening or groove and before the projection X (forming a part of the upper bearing-surface of said groove) comes in contact with the web or shank K of the rail to enable said joint to be further tightened, if desired.

The outer longitudinal lower edge of each of said side and bed plates B and B' is represented in Fig. 1 by the letters T, H, and U. It is made so that the transverse width of the lower part of said side and bed plates B and B' is considerably greater at the extremities at T and U than at the center at H. This is

accomplished by making said longitudinal lower edge or side either concave and curving outward from the center at H toward the ends at T and U, or by a bevel or flare outward toward said ends, making an obtuse angle at the center H. By this means when said side and bed plates B and B' are applied to opposite sides of the rails to be joined the bottom or clamp plates C and C' can be easily slipped or put into place under said plates B and B' at their center at H, and when moved apart the projections P and P' on said bottom or clamp plates C and C' will form a bearing-surface on the concave, beveled, or flaring longitudinal lower edge T H U, and the farther apart said clamps or bottom plates are driven the more firmly and rigidly they will hold together the side and bed plates B and B' embracing the rails, and by means of this concavity or angle in the outer longitudinal lower edge of said side and bed plates B and B' said joint may be easily tightened, loosened, or wholly removed by moving said bottom or clamp plates C and C' farther apart or nearer together, thus facilitating the laying of track, the insertion of new rails, and the adjustment of the joint. In practice I prefer to make said lower longitudinal edge T H U also either slightly beveled or curved upward to meet a similar bevel or curve on the inner bearing-surface of the projections P and P' on said bottom or clamp plates C and C', so as to increase the hold or purchase of said clamp-plates thereon; but it may be made in any manner so that said projections will obtain such a hold on the beveled or concave outer longitudinal lower edge of the plates B and B'.

In both Figs. 1 and 4 my invention is shown as applied to rails as ordinarily used on American railroads. In case it is desired to apply this joint to rails of the style usually used in England, where the lower member is the same or substantially similar to the upper member, the form of the opening or groove in the lower part of the plates B and B' may be altered by making it larger and less tapering; but said plates remain otherwise substantially the same, and they may be made of such height, size, or length as is desired and to fit any size of rail.

The bottom or clamp plates C and C' are more clearly illustrated in Fig. 2. These are each made of a single piece of metal with projections or lips P and P' formed on the upper surface thereof to fit and form a bearing-surface on and hold the two side and bed plates B and B' together in their position on either side of the rails. Each of these projections P and P' is made tapering or curved in such a manner that it is wider at one end than at the other, and each tapers or curves toward the outer edges *p* and *p'*, as shown in Fig. 2, so that the upper surface of the said bottom or clamp plate and the opening Z between the two projections P and P' is wider on the side *c* than on the inner side *c'*, and

the two bottom or clamp plates C and C' are placed in position under the side and bed plates B and B' so that the two narrower openings between the projections are adjacent to each other. By this construction the bevel or curve on the inner surface of said projections P and P' forms a bearing-surface upon the outer longitudinal lower beveled or concave edge T H U of each of the side and bed plates B and B'.

The inner bearing-surface N of the projections P and P', I prefer also to make beveled, curved, or flaring outward and upward from the base of each projection to the top thereof, the more firmly to hold the said outer longitudinal lower edge T H U of the side and bed plates B and B'; but said projections P and P' may be made in any form so as to tightly hold the said side and bed plates together when applied thereto. The inner side of each of said bottom or clamp plates C and C', having the narrower opening between the projections, may be made beveled or curving to prevent the wedge between them from dropping out of place. In practice I prefer to make on each of the inner sides of said bottom or clamp plates a projection or dovetail, as shown at O in said Fig. 2, to fit under and hold up a similar projection or dovetail on said wedge D.

The wedge D is shown at Fig. 3. It is also made of a single piece of metal, and in application to the joint the narrow end is placed between the bottom or clamp plates C and C', and it is then driven in far enough to force said bottom or clamp plates C and C' apart until the bearing-surfaces on the inner sides of the projections P and P' thereon hold the two side and bed plates B and B' embracing said rails firmly and rigidly against said rails. By this means, in a rail-joint constructed according to this specification, the compensating action of the wedge is applied evenly to the several parts of the joint at the bearing-surface L under the top or upper member of the rail, giving support where most needed; at the opening or groove in the lower part of the side and bed plates, holding firmly the lower member of the rail above and below, and also on the curved or beveled outer lower edge of the side and bed plates to hold them firmly in position. When said wedge is driven sufficiently far between the bottom or clamp plates, it may be held in position by any suitable device to secure it firmly in its place; but I prefer in the practical application of my invention to place said joint upon a tie or sleeper and drive a spike behind the broad end of said wedge D, so that in case it is desired to tighten the joint the wedge may be driven in slightly farther and a spike driven to hold it in its new position. In case no tie is put under the joint, said wedge may be secured in position by a bolt or bolts or other suitable device. I prefer, also, in the practical application of my invention, to make said wedge with a projection or dovetail, as shown

at R in Fig. 3, to meet and overlap a corresponding projection or dovetail on the inner sides of the bottom or clamp plates C and C', as shown in Fig. 2; but any similar device
5 may be used to prevent its slipping down out of place.

In order to prevent the joint when in position on the rails from slipping laterally in applying my invention, a spike may be driven
10 into the tie behind each end of the bottom or clamp plates C and C', as shown in Fig. 1, or a slight incision made in the lower member or flange of the rail at the point where the end of the joint will come, and with the blow of a hammer a lip or projection formed to prevent any
15 creeping or lateral movement of the joint. Such a device is shown at Y in Figs. 1 and 4 of the drawings.

It is necessary in the practical application
20 of my invention, if said joint is placed upon a tie, that such tie be placed lower than the adjoining ties, or that a piece be cut out to allow for the thickness of the bed and clamp plates beneath the rail.

25 Having thus described my said invention, I claim by reason thereof, and desire to secure by Letters Patent, as follows:

1. A railway-rail joint consisting of two side and bed plates having the upper edge of

each beveled to form a bearing-surface under
30 the upper member of the rails, and an opening or groove in the lower part of said plates to form a bearing-surface over and under the lower member of the rail and having the
35 lower outer longitudinal edges of said plates concave, beveled, or flaring outward from the center to the ends, forming a bearing-surface for the projections on each end of two bottom or clamp plates to fit under and to hold together said side and bed plates embracing the
40 rails in combination with said bottom or clamp plates, and a wedge to hold them apart, all substantially as set forth.

2. In a railway-rail joint, the combination of bed and side plates with bottom or clamp
45 plates and a wedge, all so constructed that the action of the wedge driving apart the bottom or clamp plates draws together the side and bed plates embracing the rails, substantially as and for the purposes set forth.
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3. In a railway-rail joint, a side and bed plate having the outer lower lateral edge concave or beveled and flaring, substantially as shown, for the purposes specified.

R. I. VERPLANCK.

Witnesses:

EDWIN G. DAY,

EDWARD W. RANKIN.