

(No Model.)

G. W. CREIGHTON.
RAIL JOINT.

No. 433,329.

Patented July 29, 1890.

Fig. 1.

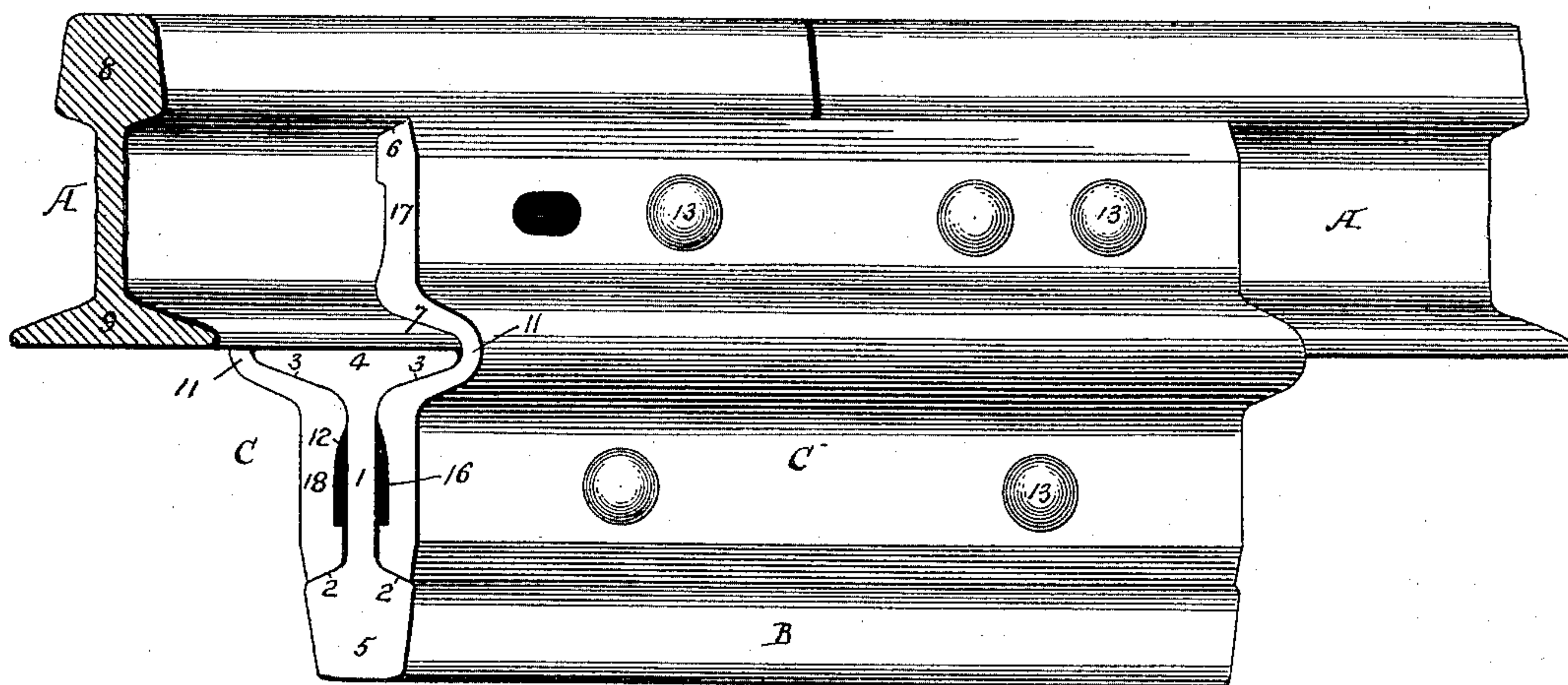
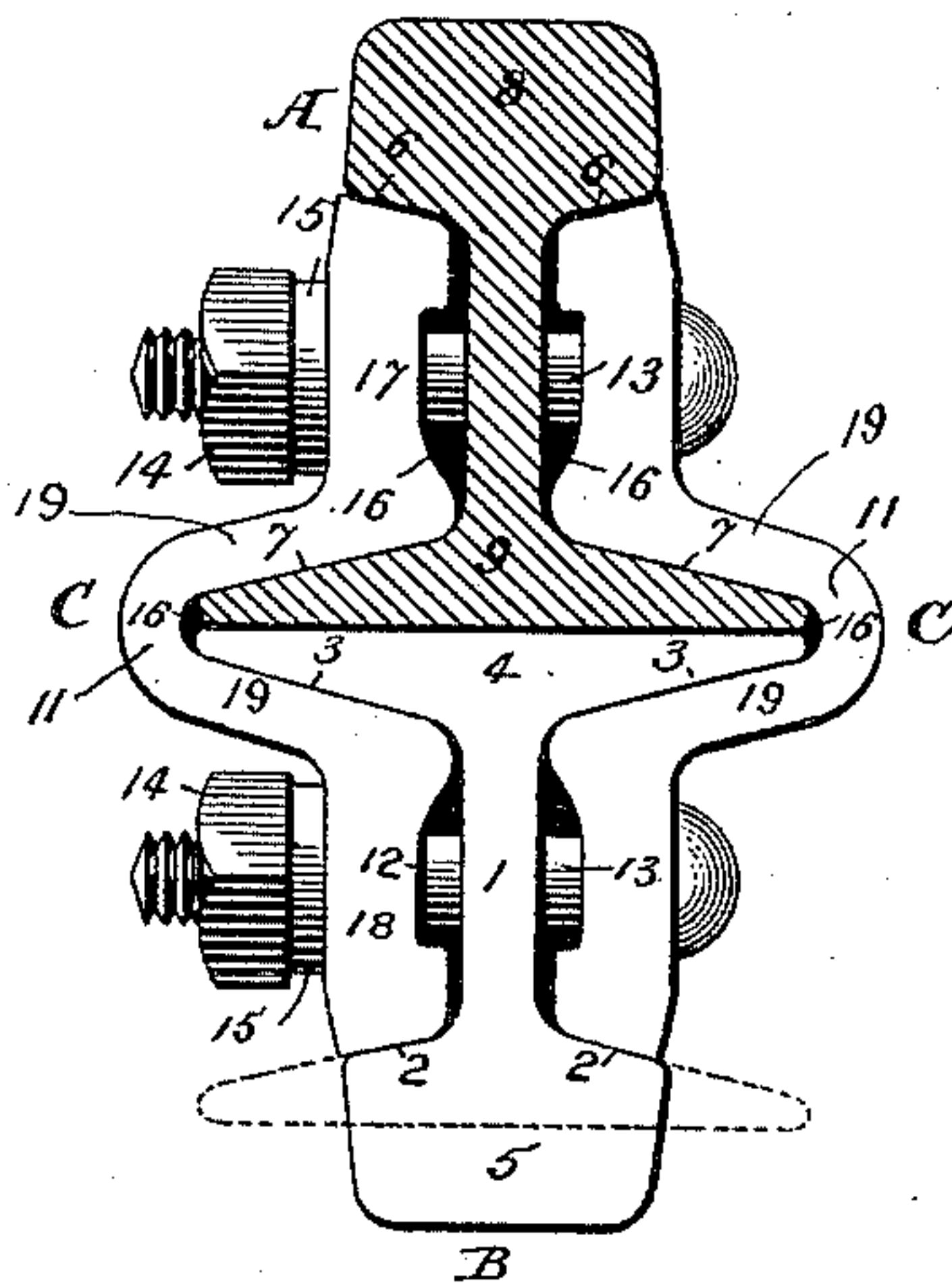


Fig. 2.



WITNESSES

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RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 433,329, dated July 29, 1890.

Application filed April 10, 1890. Serial No. 347,297. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CREIGHTON, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

My invention relates to rail-joints; and it consists in various improvements which will be fully described hereinafter.

In the drawings, in which like reference-signs refer to like parts throughout the several views, Figure 1 is a perspective view of my improved rail-joint; and Fig. 2 is a transverse section thereof.

The greatest desideratum perhaps in railroad construction is a rail-joint which shall so unite the rails as to make them practically continuous while permitting of their necessary expansion and contraction. The rail-joints in common use have been found unsatisfactory in several particulars. They are usually composed of a pair of plain bars or L-shaped bars, called "plain" and "angle" splices, respectively, bolted one on either side of the main rail and extending to the cross-ties adjacent to the joint. By reason of these splices resting at their ends upon the cross-ties they form a solid bridge from one tie to the other, and when the splices work loose from the rails they act as a solid anvil upon which the rail ends are pounded by passing wheels. It is very common for splice-bars to become loose, and in this way large numbers of rail ends are battered and bent and the rails rendered unfit for use.

Attempts have been made recently to produce a "continuous" rail effect by using very long splices extending entirely over the joint-ties and bolted at short intervals to the rails. Splices which extend very far either way from the abutting ends of the rails render the portions of the rails to which they are bolted much more rigid than other portions. In consequence of this the wave in the rail which accompanies every heavily-loaded wheel assumes at the rail ends an angular shape, the angle pointing upward when the joint is between a pair of wheels and downward when a wheel is directly over the joint. The effect of this is that great tensile and compressive

strains are brought alternately upon the upper and lower fibers of the splice-bars, and very many of them are thereby broken. The present invention is a joint which has great vertical and lateral strength, thereby preserving the "line" and "surface" of the track, and which is also short enough to lie entirely between the joint ties or supports, and therefore not subject to the defects enumerated above.

In the drawings, A represents the main rails, which are of the usual construction.

B is a short section of rail, which we will term a "splice-rail." The splice-rail may be in the form of an I-beam, as shown in dotted lines, or it may be a piece of common railroad-rail, the latter being preferable, as old rails otherwise only fit for scrap can be thus utilized.

The essential features of the splice-rail are a flange 4, level on top and having upwardly-inclined inner surfaces 3 adjacent to the web 1, and a flange 5 below the web having downwardly-inclined inner surfaces 2. That part of the splice-plate C above the base of the main rail is formed exactly like the common angle-splice—that is, it is concave toward the web of the rail and inclined above and below to correspond to the inclines 6 7 of the head 8 and foot 9 of the rail. The lower part of the splice-plate is similarly constructed, having a concave inner surface 12, and inclines corresponding to and engaging the inclines 2 3 of the splice-rail. The upper and lower portions of the splice-plates are joined by lateral flanges 19 and a curved portion 11, thus forming what may be termed a "double-angle splice." The inclines 2, 3, 6, and 7 are preferably made at the same angle with the horizontal, and the upper and lower parts of the splice may be made exactly alike, if desired. It will be understood that the particular angles of these several inclines and the question of symmetry are matters of taste and selection and not essential features of my invention. The splices are fastened to the rails by bolts and nuts 13 14, of the usual form, and nut-locks or washers 15. The bolt-holes in either the splices or the rails are made oblong, as usual, to provide for expansion and contraction. I have shown two bolts through

each main rail and two through the splice-rail; but the number used will vary according to the requirements of different situations. The several parts are so proportioned that
5 when they are bolted together the upper and lower parts 17 and 18 of the splices will wedge tightly between the inclines of the main rail and splice-rail, respectively, and the contacting flanges of the main rail and splice-rail will
10 be gripped and held tightly together by the lateral flanges 19. Spaces 16 are left between the splices and rails, and the inclined portions alone are allowed to come in contact, whereby all of the parts are united by com-
15 bined screw-and-wedge action and form a solid unyielding whole. The joint may be made short enough, so as not to perceptibly interfere with the flexibility of the rail, while its great strength vertically and laterally is sufficient
20 to preserve the surface and line of the track at the joints equal to that at the other portions of the rails.

Without limiting myself to the precise construction shown and described, I claim—

25 1. In a rail-joint, the combination of the main rails, the splice-rail, and the double-angle splice-bars each comprising upper and

lower rail-clamping portions 17 18, lateral flanges 19, and curved portion 11, substantially as described.

2. A rail-joint composed of the main and splice rails having the inclines 2 3 6 7, and the double-angle splice-bars having the corresponding inclines, substantially as described.

3. A rail-joint composed of the main and splice rails having the inclines 2 3 6 7, and the double-angle splice-bars having the corresponding inclines, said splice-bars being so proportioned and related to the rails that the several inclines only may contact when the
40 parts are assembled, substantially as described.

4. A double-angle splice-bar for rail-joints composed of upper and lower portions, each having a pair of opposing inclines and an
45 intermediate connecting portion 11, substantially as described.

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

GEORGE W. CREIGHTON.

Witnesses:

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WM. KNIGHT SHRYOCK.