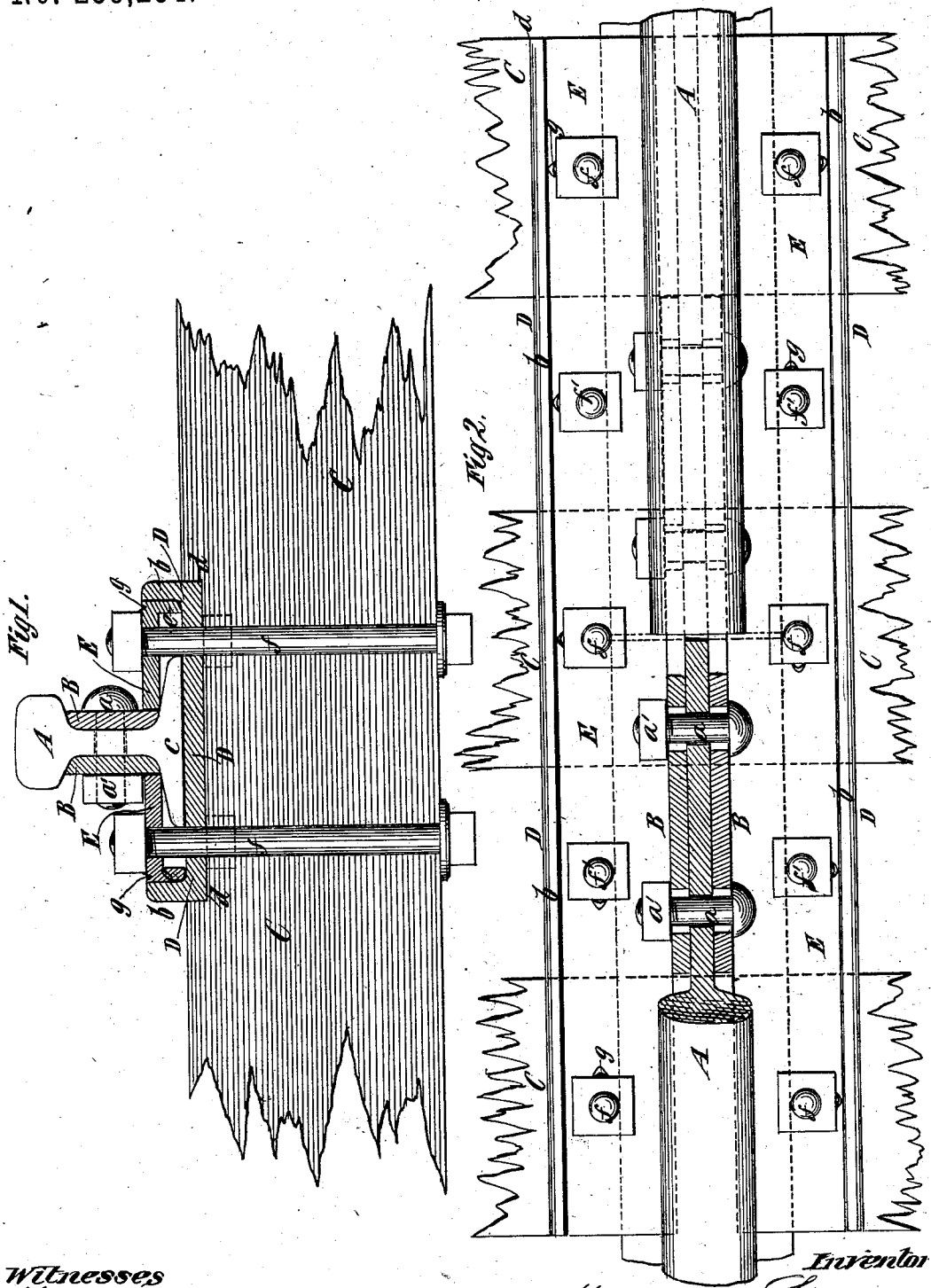
(No Model.)

W. J. STEVENS.

RAIL JOINT FOR RAILWAYS.

No. 259,234. Patented June 6, 1882.



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UNITED STATES PATENT OFFICE.

WILLIAM J. STEVENS, OF NEW YORK, N. Y.

RAIL-JOINT FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 259,234, dated June 6, 1882.

Application filed October 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. STEVENS, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Rail-Joints for Railways, of which the following is a specification.

The object of my invention is to prevent the hammering and battering of the ends of the rails, produced by the passage of trains over them, and generally to improve such joints and make them more secure and durable.

In making my improved joint I connect the end portions of the rails by fish-plates in the usual way, and I employ a long chair or channel-plate, upon which the rails rest, and which rests on two or more ties; and my invention consists in the combination, with two rails, their fish-plates, cross-ties, and a chair or channel-plate, having a bearing on two or more of said cross-ties, of plates fitting snugly between the fish-plates and adjacent flanges or sides of the chair or channel-plate, and bolted to said chair or channel-plate. These plates constitute clamps, which bear upon the flange or base of the rails and hold them to the chair or channel-plate; and they also constitute braces for holding the fish-plates tightly against the web of the rail. If the nuts of the fish-bolts are all turned so that one of their sides will be approximately parallel with the chair or channel-plate, the clamping-plates may be slid longitudinally into their place and so close to the lower sides of the nuts that they will lock said nuts and effectually prevent their turning.

In the accompanying drawings, Figure 1 represents a longitudinal section of a portion of a cross-tie and a transverse section of my improved joint, and Fig. 2 represents a plan of the joint, the head of one rail being partly broken away, and of portions of the cross-ties supporting the rails.

Similar letters of reference designate corresponding parts in both figures.

A designates the rails which are to be joined, and which are of usual form, and B designates the fish-plates which are applied to each side of the rails in the usual way and secured by bolts *a*, inserted through the rails, and fish-plates, and nuts *a'*. The fish-plates are ordinarily about seventeen (17) inches long.

C designates the cross-ties which support the rails, and D designates a long chair or channel-plate, which is considerably wider between its flanges or sides *b* than the base or foot *c* of the rail, as seen in Fig. 1. The chair or channel-plate D is considerably longer than the fish-plates B, and should be long enough to have a bearing upon three cross-ties, C—say about thirty (30) inches long. This long chair or channel-plate supports the rails for a considerable distance on each side of the joint, and forms a very stable and effective support for the rails. The chair or channel-plate D is preferably fitted in notches *d* in the top surfaces of the cross-ties C, as seen in Fig. 1, so as to maintain the two rails of the track at a proper distance apart and prevent them from spreading.

Between the fish-plate B and the adjacent side or flange *b* of the chair or channel-plate D is fitted a clamping-plate, E, which snugly fills the space between said fish-plate and side or flange, and each plate E is represented as having a downwardly-projecting flange, *e*, which rests upon the top of the chair or channel-plate, while the inner edge of each plate rests upon the base or foot *c* of the rails. The clamping-plates E are drawn down upon the foot or base *c* of the rail and secured by means of bolts *f*, inserted through each tie C, the chair or channel-plate D, and the plates E, and by other bolts, *f'*, the heads of which are shown dotted in Fig. 1, which are inserted through the chair or channel-plate D and the plate E, between the ties C. The clamping-plates E are advantageous for many reasons. They not only serve as clamps for holding the rails down upon the chair or channel-plate, but they serve as braces to prevent any lateral movement of the rail relative to the chair or channel-plate, and support and hold the fish-plates tightly against the web of the rails throughout their whole length. It is evident that when a car-wheel approaches a joint the rail is depressed and the fish-plates are forced down upon the foot or base *c* of the next rail. The lower edge of the fish-plates are rounded on the inside, and as they rest on the curves which are formed at the juncture of the web of the rail with its base or foot any downward movement of the fish-plates on the rail tends to spread the fish-plates and crowd the nuts *a'* off the fish-bolts; and it is found

that the nuts of the fish-bolts are forced forward after a time, so that they no longer bear firmly against the fish-plates. The two plates E brace the fish-plates on opposite sides and hold them against the web of the rail far more effectually than any nuts, and hence therefore prevent the fish-plates from being spread apart when pressed downward on the rail base or foot *c*. If the plates E are of proper thickness, they also serve to prevent the nuts *a'* from accidental turning, because after all the nuts of a joint are turned so that one of their sides is parallel, or approximately parallel, with the chair or channel-plate, the plates E may be slipped longitudinally into place under the nuts *a'*, as seen in Fig. 1, and thus all the nuts *a'* of a joint effectually locked against accidental turning. The nuts on the bolts *f* and *f'* are not so apt to turn accidentally as are the nuts *a'* of the fish-bolts, and may be held against accidental turning by raising a burr or lip, *g*, on the plates E, adjacent to the nuts. Such burrs or lips are not sufficient, however, to prevent the turning of the nuts by a wrench applied to them.

I am aware that it is old to employ, in connection with a fish-joint, a cross-bar or short chair, which receives the abutting ends of the rail-sections, and upon which the rails are secured by clamps bearing on the foot or base of the rails; and I am also aware that these clamps have been held in place by means of bolts inserted through the clamps, the short chair or cross-bar, and the cross-tie.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the rails, the fish-plates applied thereto, the cross-ties, and a long chair or channel-plate, upon which the rails rest, and which has a bearing on two or more cross-ties, of the plates fitting snugly between the fish-plates and the adjacent sides or flanges of the chair or channel-plate, having a bearing on the base of the rails, and bolted to said chair or channel-plate, so as to secure the rails thereto, substantially as specified.

2. The combination, with the rails, the fish-plates applied thereto, the cross-ties, and a long chair or channel-plate, on which the rails rest, and which has a bearing on two or more cross-ties, of plates fitting snugly between the fish-plates and the adjacent sides or flanges of the chair or channel plate, having a bearing on the base of the rails, and serving to hold the fish-plates tightly against the sides of the rails throughout their entire length, substantially as specified.

3. The combination, with two rails, their fish-plates, and bolts, and a long chair or channel-plate, upon which the rails rest, of plates which fit snugly between the fish-plates and the adjacent flanges or sides of the chair or channel-plate, and which pass under the nuts of the said bolts for the purpose of locking the same, substantially as specified.

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