C. E. SPOONER & G. A. HUDDART.

RAILWAY RAIL JOINT.

No. 102,329. Patented Apr. 26, 1870.

Fig. 1.

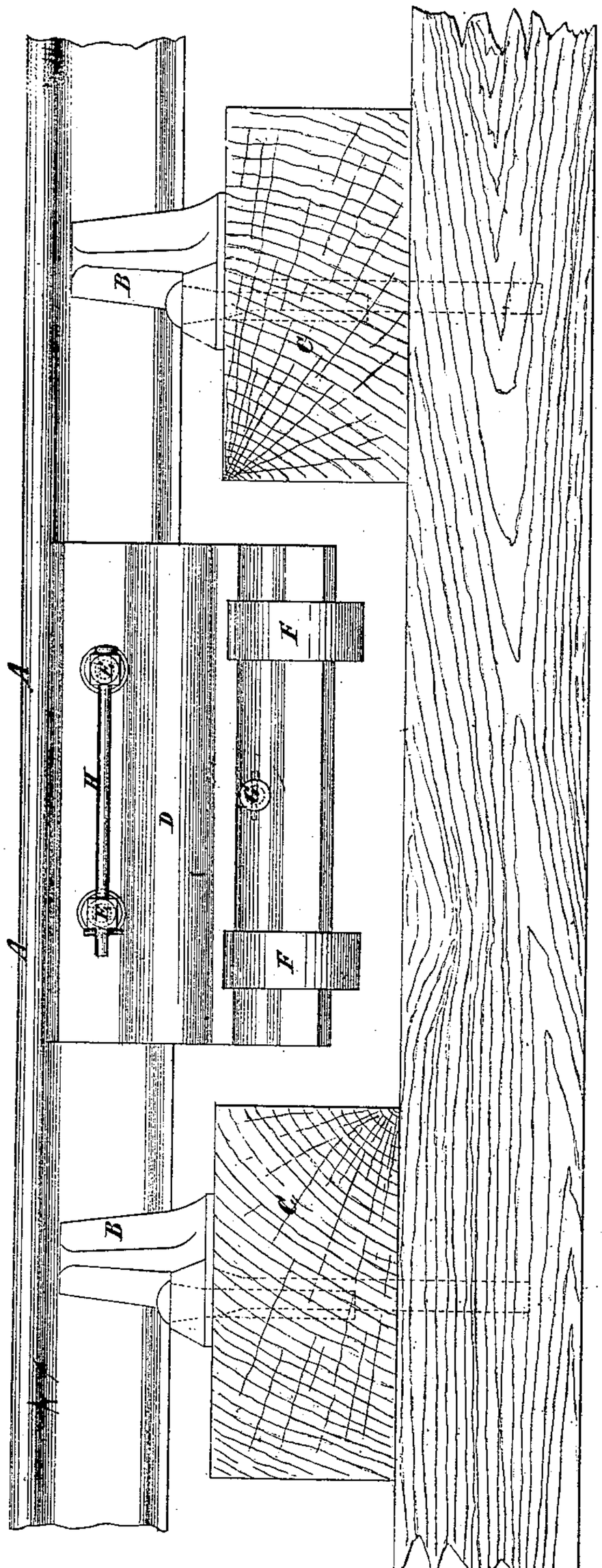


Fig. 4.

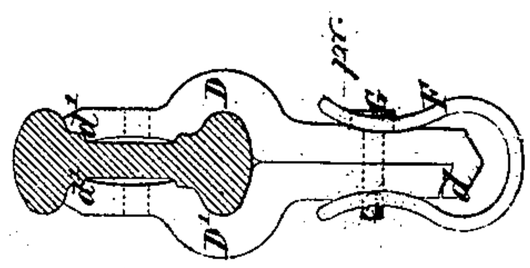


Fig. 3.

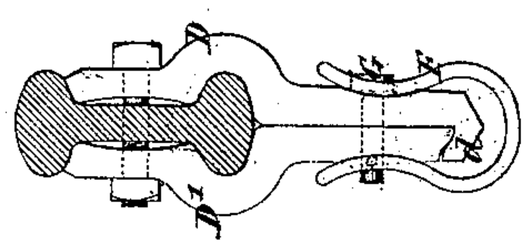
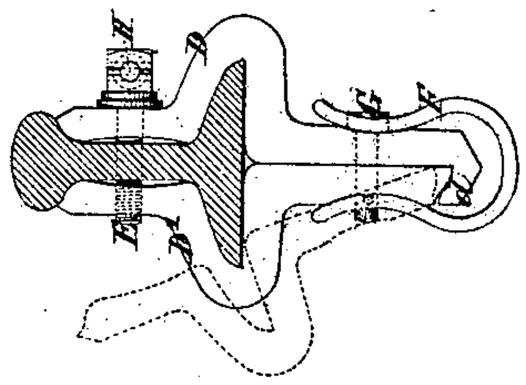


Fig. 2.



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CHARLES EASTON SPOONER, OF BRON-Y-GARTH, PORTMADOC, AND GEORGE AUGUSTUS HUDDART, OF BRYNKIR, WALES.

IMPROVEMENT IN RAILWAY-RAIL JOINTS.

Specification forming part of Letters Patent No. **102,329**, dated April 26, 1870.

To all whom it may concern:

Be it known that we, CHARLES EASTON SPOONER, of Bron-y-Garth, Portmadoc, and GEORGE AUGUSTUS HUDDART, of Brynkir, both in the county of Carnarvon, Wales, have invented a new and useful Improvement in the Mode of Strengthening the Joints of the Rails of Railways; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in the mode of strengthening the joints of the rails of railways.

In the accompanying drawings we have shown our improved mode of jointing rails as applied both to double-headed rails and to ⊥ or flat-base rails. The abutting ends of the rails, whether they be double-headed or formed with a flat base, we propose to clip between two plates, suitably shaped to embrace the web and the foot or lower head of the rail, and of such depth that when applied they will extend vertically to a sufficient distance below the rail to form a girder or stiff rib, and admit of being secured by spring-clamps, as will be presently explained.

Figure 1 shows in side elevation our improvements as applied to the joining of flat-base rails, and Fig. 2 an end elevation of the same.

A A are the abutting ends of two rails fitted to chairs B, which are spiked to transverse sleepers C C, as usual.

D D′ are plates shaped so as to embrace the abutting ends of the rails and to meet below the rail, and form a supporting-rib beneath the rails sufficiently strong to counteract the vertical strain put on the rails by passing trains. These plates D are secured, like ordinary fish-plates, to the rails by passing bolts E through them and through the web of the rails. Below the base of the rails the plates are held together by spring-clips F F, which are slid into position over the bottom ends of the plates. This mode of holding the plates will permit of the free contraction and expansion of the rails within the plates, due to the changes of temperature to which they are exposed. The plates connected at their bottom edges by spring-clips may, in some cases, have a tendency to move endwise; but to prevent this we propose to pass a pin or key, G, through the plates, and thus effectually to prevent their shifting endwise and loosening the joint. The plates D D′, it will be seen at Fig. 2, are countersunk to receive the spring-clips and prevent their shifting. In this figure it will also be seen that the plates are connected together below the rails by forming a rabbeted rib or flange on one plate, under which the chamfered edge of the adjoining plate is inserted, and thus an interlocking connection is formed.

Fig. 3 shows a double-headed rail, A, clamped by a pair of plates, D D′, of like construction to those shown at Fig. 2. The plate D is made deeper than the plate D′, to the extent of a rib or flange, *d*, which is intended to form a bearing for the bottom edge of the plate D′. The way of putting together our coupling-plates is indicated by the dotted lines in Fig. 2. Thus, the plate D having been brought into position so as to lap over the point of the abutting ends of the rails, the foot of the plate D′ is to be placed on the under rib or flange, *d*, and the plate is to be moved up into position to grip the base of the rails. Screw-bolts being then inserted in corresponding holes in the plates and webs of the rails and tightened up, a firm and strong joint will be formed, the lower ends of the plates being securely locked together. This mode of connecting the plates together below the base of the rails may be used in some cases without the spring-clips; but the combination of the two will in general be preferred.

Fig. 4 shows a slight modification, in which the form of some of the contact parts of the rail and plates is somewhat changed. To give increased support to the rail, we prefer to roll or form the plates with square or nearly square shoulders, as shown at *d′ d′*, which shoulders are intended to bear against corresponding shoulders formed under the heads of the rails in place of the ordinary curved abutting surfaces, which are liable to act like wedges under the pressure of a passing train, and thus tend to thrust open the gripping-plates and loosen the joint. To prevent the loosening of the screw-bolts when tightened, to which they are

very liable, owing to the vibration caused by the passing traffic. we propose in some cases to avoid the use of nuts, and to fit the screw-bolts into tapped holes in one of the side plates, and to prevent the bolts from turning by drilling a hole transversely through the heads of the bolts and inserting therein a rod extending from one bolt-head to the other. This arrangement is shown in the side elevation, Fig. 1, and in end elevation at Fig. 2.

The rod H we form with a head, and its opposite end we pierce to receive a pin or key, which will serve to retain it in place.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination of plates D D′ *d d′* with spring-clips F and pins or screws G, arranged as and for the purpose set forth.

In witness whereof we have hereunto set our hands and seals this 11th day of November, 1869.

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