F. BROWN & J. SMITH.

RAIL-JOINTS AND FISH-PLATES.

No. 186,794. Patented Jan. 30, 1877.

Fig. 1.

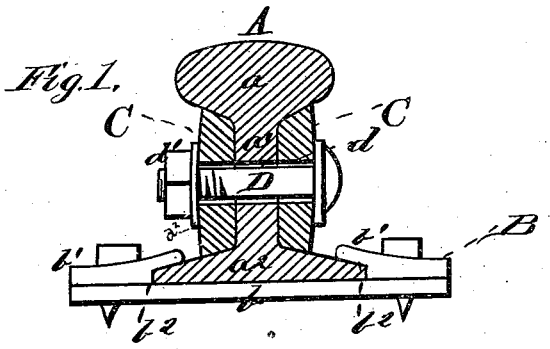


Fig. 2.

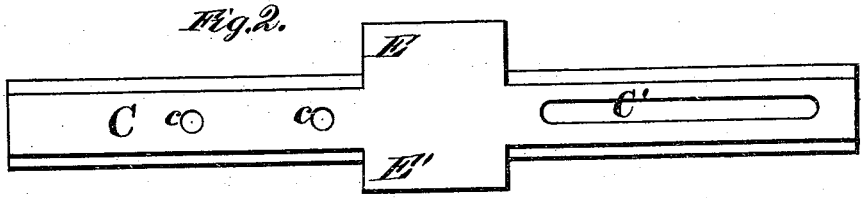


Fig. 3.

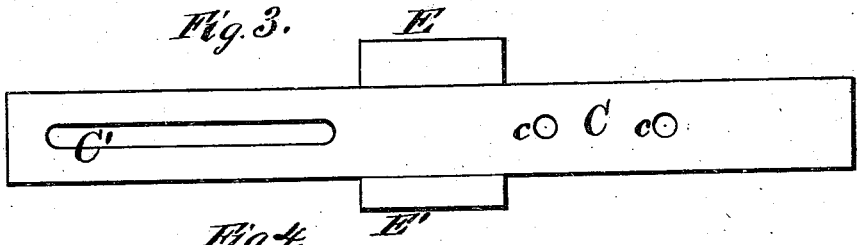
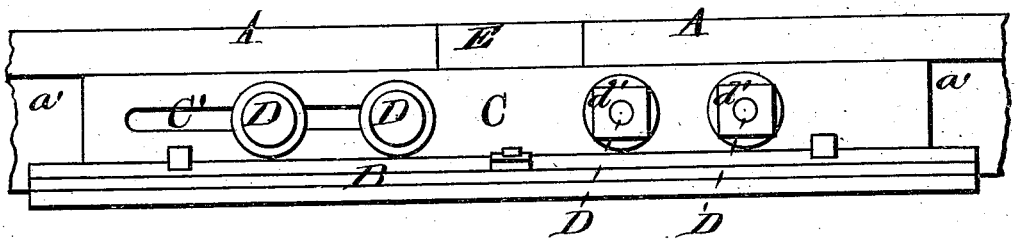


Fig. 4.



WITNESSES

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FREDERICK BROWN AND JOSEPH SMITH, OF COMO STATION, WYOMING TERRITORY.

IMPROVEMENT IN RAIL-JOINTS AND FISH-PLATES.

Specification forming part of Letters Patent No. **186,794**, dated January 30, 1877; application filed November 4, 1876.

To all whom it may concern:

Be it known that we, FREDERICK BROWN and JOSEPH SMITH, of Como Station, in the county of Carbon and Territory of Wyoming, have invented a new and valuable Improvement in Rail-Joints and Fish-Plates; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of transverse vertical section of our rail-joints and fish-plates, and Figs. 2 and 3 are detail views of the fish-plates. Fig. 4 is a side elevation of our rail-joints and fish-plates.

This invention relates to railway-joints; and it consists in the peculiar construction and arrangement of the slotted fish-plates, interposed metal blocks, and other devices, hereinafter particularly set forth.

In the annexed drawings, A A designate two contiguous sections of an ordinary pear-shape-headed railway-rail, having a web, *a*, a neck, a^1, and tread a^2. Web *a* of each section is locked to the stringers by means of a chair, B, which consists of a sub-plate, *b*, and two clamping flanges or plates, b^1 b^1. Said clamping plates or flanges are recessed at their inner and under corners, at b^2, to receive the edges of said web, and they are spiked or bolted to said sub-plate *b*. Said chair, extending continuously across the joints of the rail, holds the sections thereof firmly in place.

C C designate two steel fish-plates, which sit closely against the sides of neck a^1, and are secured thereto by bolts D D, passing through perforations in said neck. One of said perforations (marked *d*) is shown in Fig. 1. Each one of said fish-plates is provided at its middle portion with an upwardly-extending block, E, and a downwardly-extending block, E′. Blocks E E and E′ E′ are, respectively, opposite to one another when the proximate ends of rail-sections A A are in the position nearest to one another, and they then fill the space between the said sections at the top and bottom thereof, so as to present a perfectly smooth and firm track.

To provide for contraction and expansion, we make a longitudinal slot, C′, in each one of said fish-plates C, said slots C′ being near the opposite ends of said fish-plates C, as shown in Figs. 2 and 3. In that part of each fish-plate which is opposite to the slot C′ of the other plate we make perforations *c c*. Each one of the attaching-bolts D, above referred to, passes through one of said perforations *c* in one fish-plate, and one of said slots C′ in the opposite fish-plate. We have shown four of such bolts; but the device would be operative if only two were used. Said bolts are tightly secured by nuts d^1 and washers d^2.

The above construction retains the rails firmly in place, but allows their expansion and contraction under the influence of varying temperature. When said sections contract, a space is left between each one of blocks E and one of the sections. Thus there are two spaces on opposite sides of the rail at each joint. These spaces may be filled with pieces of rail or other metal, if desired, so as to make the rail complete in all its parts.

The joint and fish-plates herein described will be found especially useful in slide-rails for switches. Such rails are necessarily provided with spaces or "expansions," to allow the expansion and contraction of such rails, otherwise the switches could not be worked; but the bolts attaching to such rails the connecting-straps that extend across such spaces are often torn off by the contraction of the metal in cold weather, leaving dangerous gaps. Our invention effectually guards against the occurrence of any such accident, while freely permitting both expansion and contraction.

What we claim as new, and desire to secure by Letters Patent, is—

The perforated rail-sections A, provided with base a^2 and attaching-bolts D, in combination with the slotted and perforated fish-plates C, having projections E E′, sub-plate *b*, and recessed clamping-plates b^1 b^1, all constructed and arranged in the manner as described, and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

FREDERICK BROWN.
JOSEPH SMITH.

Witnesses:
JOHN W. STRYKER,
A. M. BAUMAN.