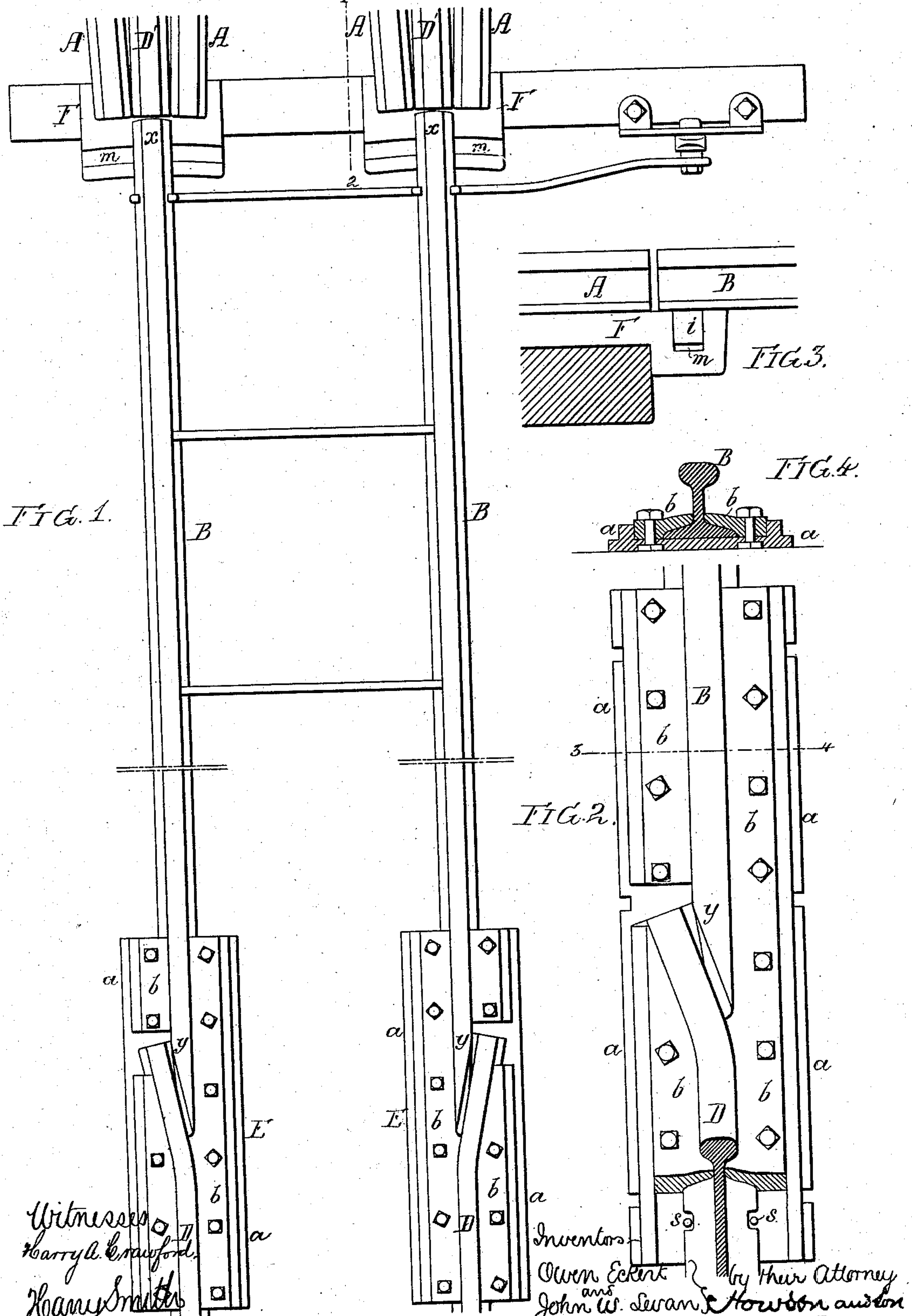
O. ECKERT & J. W. LEVAN.
Rail-Joint.

No. 205,369. **Patented June 25, 1878.**



Witnesses
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UNITED STATES PATENT OFFICE.

OWEN ECKERT AND JOHN W. LEVAN, OF WHITEHAVEN, PENNSYLVANIA.

IMPROVEMENT IN RAIL-JOINTS.

Specification forming part of Letters Patent No. **205,369**, dated June 25, 1878; application filed March 25, 1878.

To all whom it may concern:

Be it known that we, OWEN ECKERT and JOHN W. LEVAN, of Whitehaven, Luzerne county, Pennsylvania, have invented a new and useful Improvement in Devices for Compensating for Expansion and Contraction of Railway-Rails, of which the following is a specification:

The object of our invention is to overcome the evil effects due to the expansion and contraction of the rails of a railroad, and especially the switch-rails—an object which we attain in the following manner, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view of a switch with our improvement; Fig. 2, an enlarged plan view of a portion of the same; and Figs. 3 and 4 sections on the line 1 2, Fig. 1, and 3 4, Fig. 2, respectively.

A A A A are the fixed rails of a switch; B B, the movable switch-rails, and D D D′ D′ the rails of the main track.

The outer ends *x* of the switch-rails B B, to which the operating-lever of the switch is connected, are provided with downwardly-projecting lugs *i*, adapted to recesses *m* formed in plates F F, in which are also formed bearings for the ends of the rails A A A A and D′ D′. (See Figs. 1 and 3.)

By means of the lugs *i i* and recessed plates F F the ends *x* of the switch-rails B B are always maintained in their proper longitudinal position in respect to the adjacent ends of the fixed rails A A A A and D′ D′, so that the shifting of the switch cannot be interfered with by the contact of the ends of its rails with those of the fixed rails.

The flanges of the switch-rails B B, at and near the ends *y*, and the flanges of the main-track rails D D, adjacent thereto, are adapted to shoes E E, each consisting, in the present instance, of a base-plate, *a*, and clamping-plates *b b*, as shown in Fig. 4, the clamping-plates being so secured to the base-plate by bolts and nuts that they will bind on the flanges of the rails with sufficient firmness to maintain them in position vertically without preventing longitudinal movement of the rails.

The end of each of the rails D is bent outward, as shown in Figs. 1 and 2, and the end *y* of each switch-rail is beveled, so as to present an inclination corresponding with that of the bent end of the rail D.

By thus beveling the ends of the rails B B and D D, and adapting said rails to the guiding-shoes, free expansion and contraction of the rails longitudinally are permitted, and no danger of the bending of the switch-rails when the latter are expanded is incurred. At the same time the contraction of the rails B B and D D does not produce such a gap between them that the wheels of the locomotive and car can hammer the ends of the rails in passing the said gap, the wheels being always supported upon either one or other or both of said rails B and D.

In order to still more effectually guard against a binding contact between the ends *y y* of the rails B B and the ends of the rails D D, the flanges of the latter rails may be recessed at the edges, as shown in Fig. 2, and pins *s* on the shoes E adapted to the recesses in the flanges, the pins being so arranged that they will restrict the longitudinal movement of the rails D and prevent the ends of the latter from reaching the ends *y* of the rails B when the latter are fully expanded.

Although we have shown our invention as applied to a switch, and although it is especially adapted for use in this connection, it can be applied to any portion of a railroad-track where special provision against the effects of expansion and contraction is important.

We are aware that the beveled end of one rail has been combined with a segmental piece loosely connected to an adjoining rail, the said segment serving, under all circumstances, to bridge the gap which occurs between the rails—a plan which is objectionable, owing to the want of that permanency of construction which is so desirable in railroad-tracks.

We claim as our invention—

1. The combination of the rails B B, having inclined ends, and the rails D D, having ends bent to a corresponding inclination, with guiding-shoes E E, to which the said rails are adapted, so as to move in parallel lines, all substantially as set forth.

2. The combination of the switch-rails B B, confined longitudinally at their outer ends *x x*, and having their inner ends *y y* beveled,

with the fixed rails D D inclined at their ends, to correspond with the beveled ends of the said switch-rails, substantially as set forth.

3. The combination of the rails B B, having beveled ends, and the rails D D, having inclined ends and recessed flanges, with the shoes E E, having pins *s*, adapted to the recesses in the flanges, as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

OWEN ECKERT.
JOHN W. LEVAN.

Witnesses:
JOHN M. DEEMER,
HARRY SMITH.