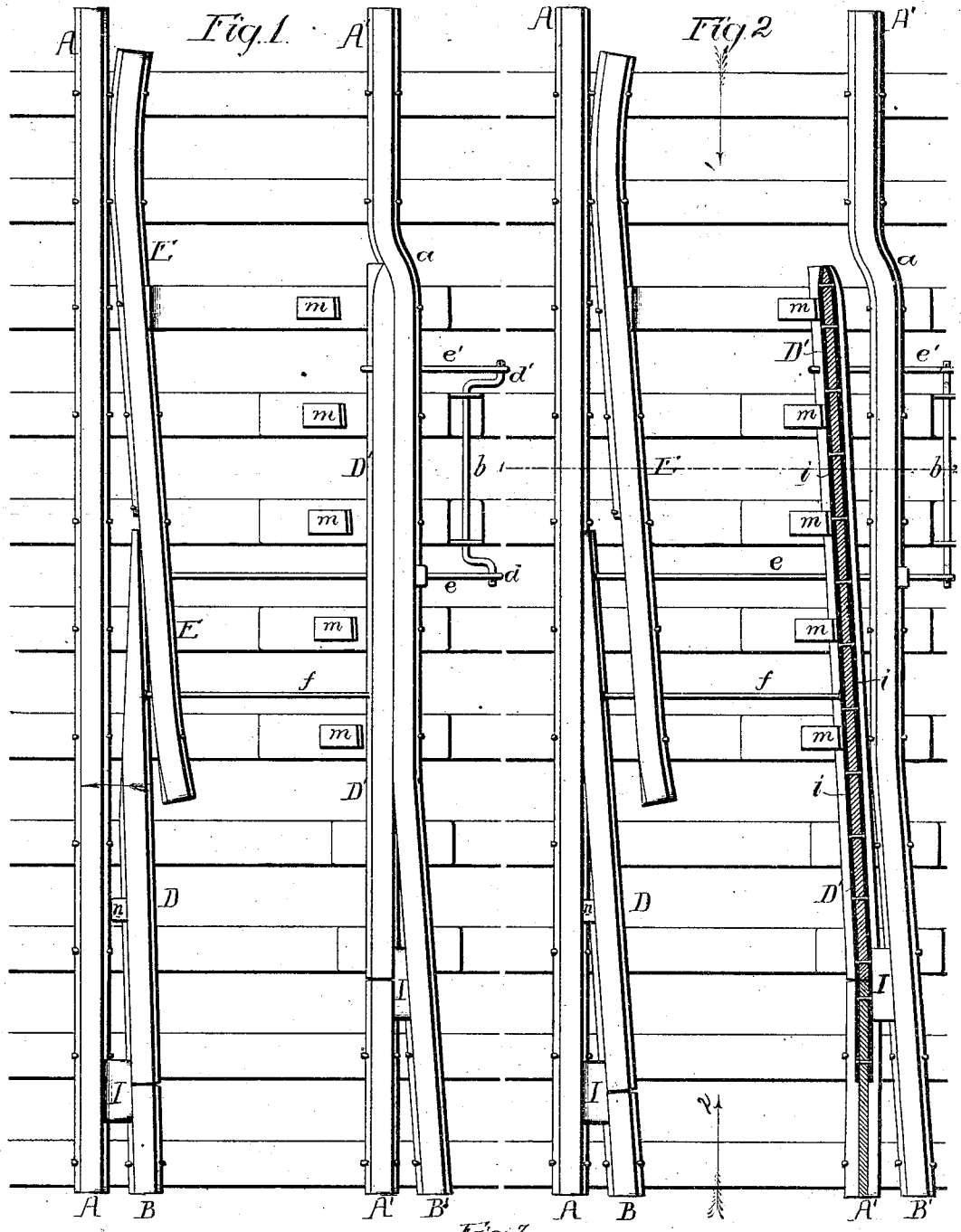
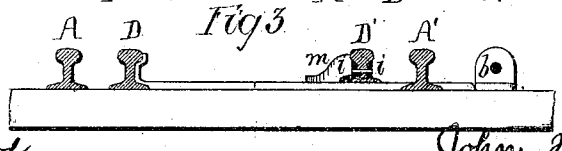
J. H. AINSWORTH.

RAILROAD-SWITCH.

No. 193,206. Patented July 17, 1877.





Witnesses.
Harry A. Crawford
Harry Smith

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UNITED STATES PATENT OFFICE.

JOHN H. AINSWORTH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **193,206**, dated July 17, 1877; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, JOHN H. AINSWORTH, of Philadelphia, Penusylvania, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification:

The object of my invention is to make a railroad-switch which is simple in construction and safe in operation—an object attained in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved railroad-switch; Fig. 2, the same with the parts in a different position, and Fig. 3 a section on the line 1 2.

A and A′ are the main rails of the track; B and B′, the rails of the siding; D and D′, the switch-rails, and E a guard-rail. The switch-rails are not pivoted in line with each other, and are of unequal lengths, the end of the rail D′ extending beyond the end of the rail D, and being pointed, while the end of the rail D is tapered, but has a blunt point, in order to enable it to more effectually resist the strains to which it is subjected. The pointed portion of the switch-rail D′ is abrupt, the full width of the rail being preserved almost to the end, so that the switch-rail is much more substantial than the ordinary tapered rail.

Adjacent to the point of the switch-rail D′ the main rail A′ is bent, as shown at *a*, Fig. 1, so as to allow the switch-rail to be brought into line with the main rail.

The switch-rails are operated from a shaft, *b*, which should be provided with a suitable operating-lever, and has two cranks, *d d′*, the former connected by a rod, *e*, to the rail D near the point, and the latter by a rod, *e′*, to the rail D′ in a similar position, the cranks being of unequal length on account of the different extent of throw of the ends of the two rails. The rails D D′ are also connected together and braced by a tie-bar, *f*, which passes through an opening in the guard-rail E, and is arranged at that point where both of the rails D and D′ have the same throw.

On each side of the switch-rail D′, and extending from its point to and beyond the joint between it and the main rail A′, is a plate or bar, *i*, the two bars being firmly bolted or riveted together and to the web of the rail, and serving to prevent the displacement of any portion of the said rail in case of the accidental breaking of the same.

In order to prevent longitudinal movement, or, as it is usually termed, "crawling" of the switch-rails, which would tend to throw their points out of their proper longitudinal positions in respect to the main rails, I place at the junction of the switch-rail D with the siding B, and between the same and the main rail A, a block, I, a similar block being placed between the siding B′ and the main rail A′ and switch-rail D′, at the junction of the latter with the said main rail A′. Each of these blocks is firmly bolted or otherwise secured to main rail, siding and switch rail, so that neither of them can move independently of the others, the maintenance of the points of the switch-rails in their proper longitudinal position being thus insured.

On the cross-ties, adjacent to the switch-rail D′, I secure a number of blocks, *m*, which arrest the inward movement of the said switch-rail, and serve to resist the pressure exerted upon the same by the flanges of the wheels, thus preventing such undue movement as would strain the rod which connects the rail to the operating-crank, or bend the tie-rod *f*, and consequently impair the operation of the switch.

To prevent like undue movement of the switch-rail D, and to stiffen the same between the joint and the end, I secure to said switch-rail, or to the main rail A, one or more blocks, *n*, which serve as abutments for preventing such undue movement, and for resisting the thrust on the switch-rail and preventing the bending of the same.

The operation of the switch is as follows: When the parts are in the position shown in Fig. 1, trains may pass freely in either direction along the main line. When a train passes from the siding onto the main track, however, the flanges of the right-hand wheels, running on the inclined track B′, will cause the flanges of the left-hand wheels to move the switch-rail D in the direction of the arrow, and consequently move the rail D′ in the same direction, so that the left-hand wheels will pass onto the main rail A′, the rail D′ being moved into such a position that it will not interfere

with the passage of the right-hand wheels onto the rail A′ at the bend *a*. When the switch is open, as in Fig. 2, the flanges of the left-hand wheels of a train running in the direction of the arrow 1 bear upon the outside of the switch-rail D′, and move the same laterally to an extent sufficient to cause the flanges of the right-hand wheels to clear the blunt end of the switch-rail D. When the train is running in the direction of the arrow 2, the flanges of its right-hand wheels will operate the switch-rail D′ and throw the switch-rail D over, so that as the left-hand wheels pass along the rail A their flanges will not come in contact with the said rail D′.

By pointing the end of the switch-rail D′, I prevent that tendency of the car-wheels to rise onto the end of the rail, when partly open or closed, to which they are subject when the end of the rail is blunt. In the present instance the flange of the wheel will strike on one side of the point or the other, and open or close the switch automatically.

I claim as my invention—

1. The combination, of the main rail A′, having a bent portion, *a*, with the switch-rail D′, having a pointed end, but maintaining its full width up to within a short distance of the end, as set forth.

2. The combination of the switch-rail D, the switch-rail D′, having a point in advance of that of the rail D, the shaft *b*, having cranks *d d′* of unequal lengths, and the connecting-rods *e e′*, as specified.

3. The combination of the switch-rail D′ and main rail A′ with the bars *i i*, extending throughout the length of the switch-rail, as set forth.

4. The combination of the switch-rail, main rail, and siding-rail with a block, I, as specified.

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

JOHN H. AINSWORTH.

Witnesses:

HERMANN MOESSNER,

HARRY SMITH.