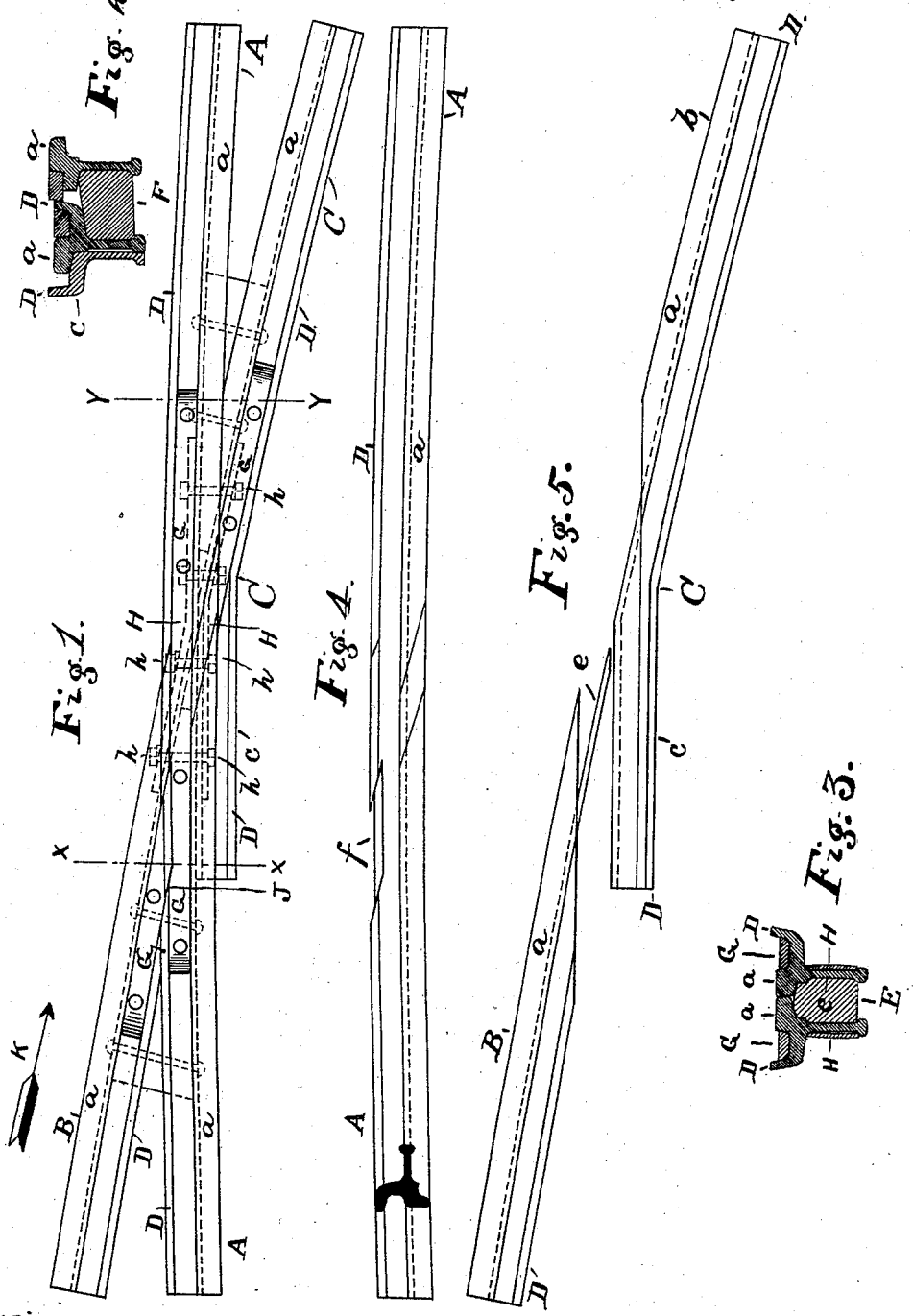
(No Model.)

A. J. MOXHAM.

ACUTE CURVE CROSSING.

No. 383,003. Patented May 15, 1888.



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UNITED STATES PATENT OFFICE.

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ACUTE CURVE-CROSSING.

SPECIFICATION forming part of Letters Patent No. 383,003, dated May 15, 1888.

Application filed December 30, 1887. Serial No. 259,380. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Acute Curve-Crossing for Street-Railroads, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide a curve-crossing at an acute angle, but which shall avoid the danger of derailing cars passing over it.

The invention will first be described in detail, and then particularly set forth in the claim.

In the accompanying drawings, Figure 1 illustrates the crossing in plan. Fig. 2 shows a cross-section through Fig. 1, taken at the line *x x*, looking to the left. Fig. 3 shows a cross-section through Fig. 1, taken at the line *y y*, looking to the left. Fig. 4 illustrates in plan the through or crossing rail of Fig. 1 detached. Fig. 5 illustrates in plan the cut or crossed rail of Fig. 1 detached and in two parts.

In said figures the several parts are indicated by letters as below described.

A is the through-rail; B, one part of the cut rail; *b*, the other part or continuation of said rail; *a*, the head of all the rails; C, the joint in the part *b* of the cut rail, which joint is bent at an angle for purposes hereinafter mentioned. That portion of the part *b* beyond the bend C is indicated by the letter *c*.

D indicates the guard of the several rails; E, Fig. 3, a chock between the webs *e* of the rails; F, a chock between said webs, as shown in Fig. 2.

At the point *f* the guard D of the through-rail A is cut away to permit of the passage of the crossing car-wheels.

G G indicate floor-plates.

The general construction, as above described and illustrated in the drawings, shows one through-rail, A, and the two-part cut rail B *b* secured together by rivets and chocks and reenforced at junction by splice-bars H and bolts *h* through said bars and the adjacent parts of the rails. Said construction needs no further explanation in order to understand it; but the essential point secured by said construction may be described as follows:

In all curve crossings a passage must be effected for the wheels of the crossing cars, either over one rail, (the one to be crossed,) as where the rail is jumped, or by cutting a groove through the crossed rail when the crossing is effected on a level. The latter method is generally preferred, and of necessity cuts away the guard of both rails at the crossing-point. Now, if the crossing is at an oblique angle or a right angle, the amount of rail-guard cut away is small; but if the crossing be at an acute angle the amount cut away necessarily becomes very great.

It is obvious that in curve work, where the car is being turned and held in place by the guard, if a small opening or lack of guard (say one inch) exist, there is no room for danger of derailment, a wheel not being able to pass through so small an opening in its effort to go off at a tangent; but if an opening of six and (as may happen) twelve or fifteen inches exist the car-wheel can be derailed at such point. This invention meets this difficulty as follows: The rail B *b* is the outer rail of a curve, the car passing in the direction of the arrow K. In this case the front truck or axle is bearing against the head *a* of this rail, and the opening in the flange of the rail does no harm, for, the wheel on the rail A bearing against its head, the wheel on the opposite end of the axle must bear not against the head, but against the guard of the opposite or inner rail of the curve, and as this guard is continuous, the wheel passes and keeps the track all right; but with the rear truck the action is directly the opposite. On the rail B *b* the rear wheel is bearing against the flange, and on the opposite or inner curve-rail against the head. Now, as the wheel on the inner curve-rail bearing against the head does so at an angle, and as the flange is filleted in the angle at its junction with the tread, this affords no preventive sufficient to keep the car from leaving the track. So when the rear wheel on the rail B *b* comes to the place where the guard is cut away the whole work of keeping the car on the track is transferred to the inner curve-rail, which does not suffice, and the rear truck of the car tends to run off the track. On reaching the open point in the guard of the rail B *b* the tendency of the wheel to derailment is checked on the extreme or over-

hanging part of the flange reaching and bearing against the guard D of the part *b*, which is prolonged to this point of danger by cutting away the rail so as to let the guard fit snug and close up to the head of the other rail and project above it, the rail at the point C being bent so as to effect this result. Should the car be running in the opposite direction and on the through-rail A, the auxiliary guard answers the same useful purpose by securing a safe passage for the rear truck over the rail A; but in this case the guard action would be exerted on the outside of the wheel instead of on the flange.

It is true that at the point J the auxiliary guard C leaves what is virtually a very wide groove at this point; but the action of the car on reaching the open point does not permit it at once to surge over at right angles to the direction of its travel. It tends to do this at this point, but at the same time continues its passage around the curve, so that the path of its wheels is a resultant between these two tendencies, in such wise that the flange reaches the auxiliary guard—that is, that part of the guard from J to C—before the wheel on the other side has mounted the head of the rail.

While a certain form of girder-rail is shown in the drawings, the construction of this curve can readily be adapted to girder-rails of any form, so long as they are provided with webs of sufficient depth to permit of the proper clamping or connecting of the several parts of the structure together.

While it is deemed preferable to bend the rail, as at C, and to let the auxiliary guard be a continuation of the rail *b*, said guard may, if desired, be attached as a separate piece instead of being integral with the rail itself; and, if desired, instead of using one through-rail and cutting the crossing rail, the two rails can be cut and fitted at this point in any way desired.

Having thus fully described my said acute curve-crossing for street railroads, as of my invention I claim—

A girder-rail curve-crossing provided with a cut-away guard and an auxiliary guard opposite the opening formed by said cutting away of the said guard, substantially as described, for the purposes set forth.

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