

(No Model.)

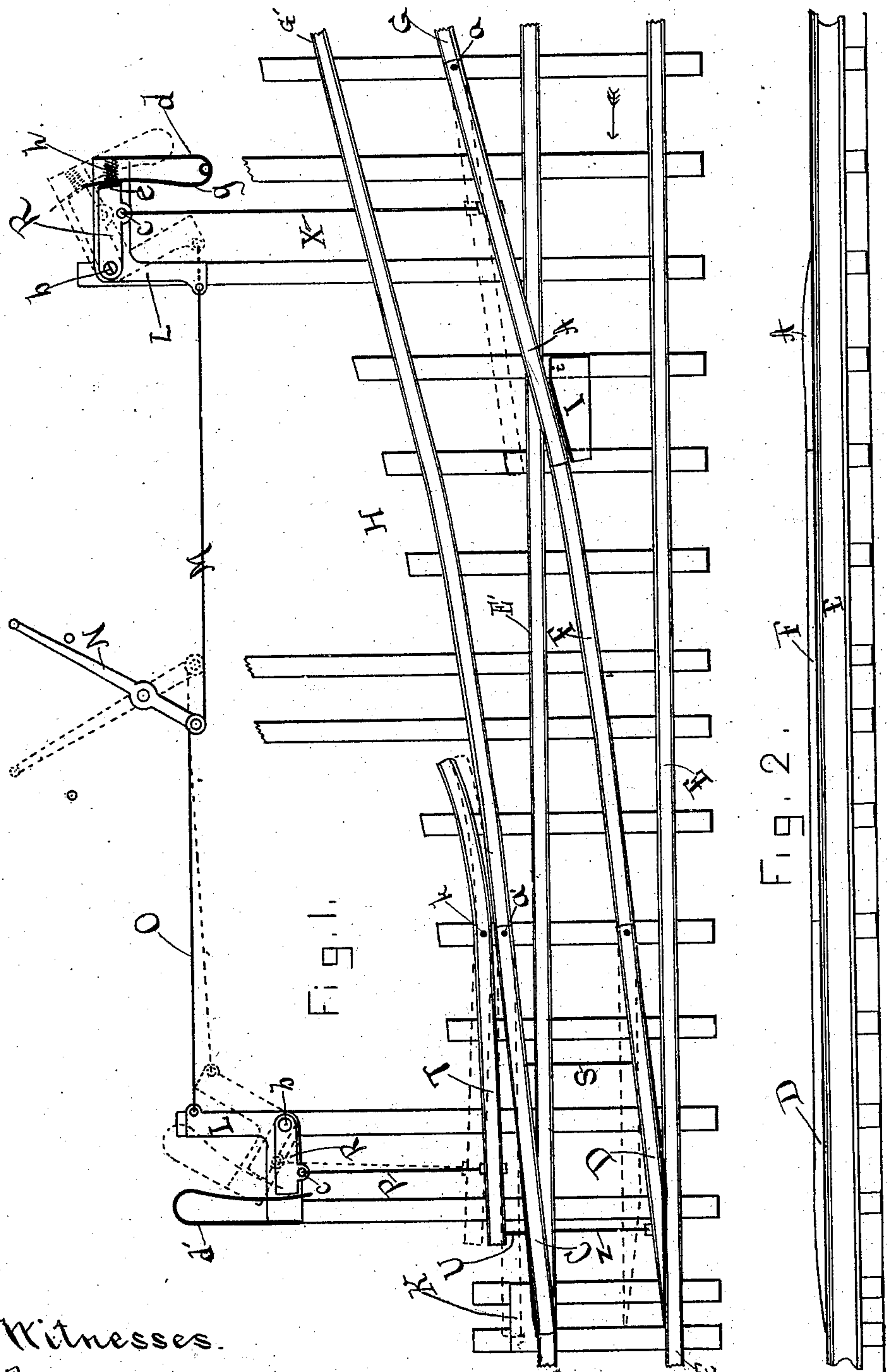
2 Sheets—Sheet 1.

D. McCARTHY.

RAILWAY SWITCH AND CROSSING.

No. 293,660.

Patented Feb. 19, 1884.



Witnesses.  
Frank H. Allen  
Gardner Greene, Jr.

Inventors  
Daniel McCarthy

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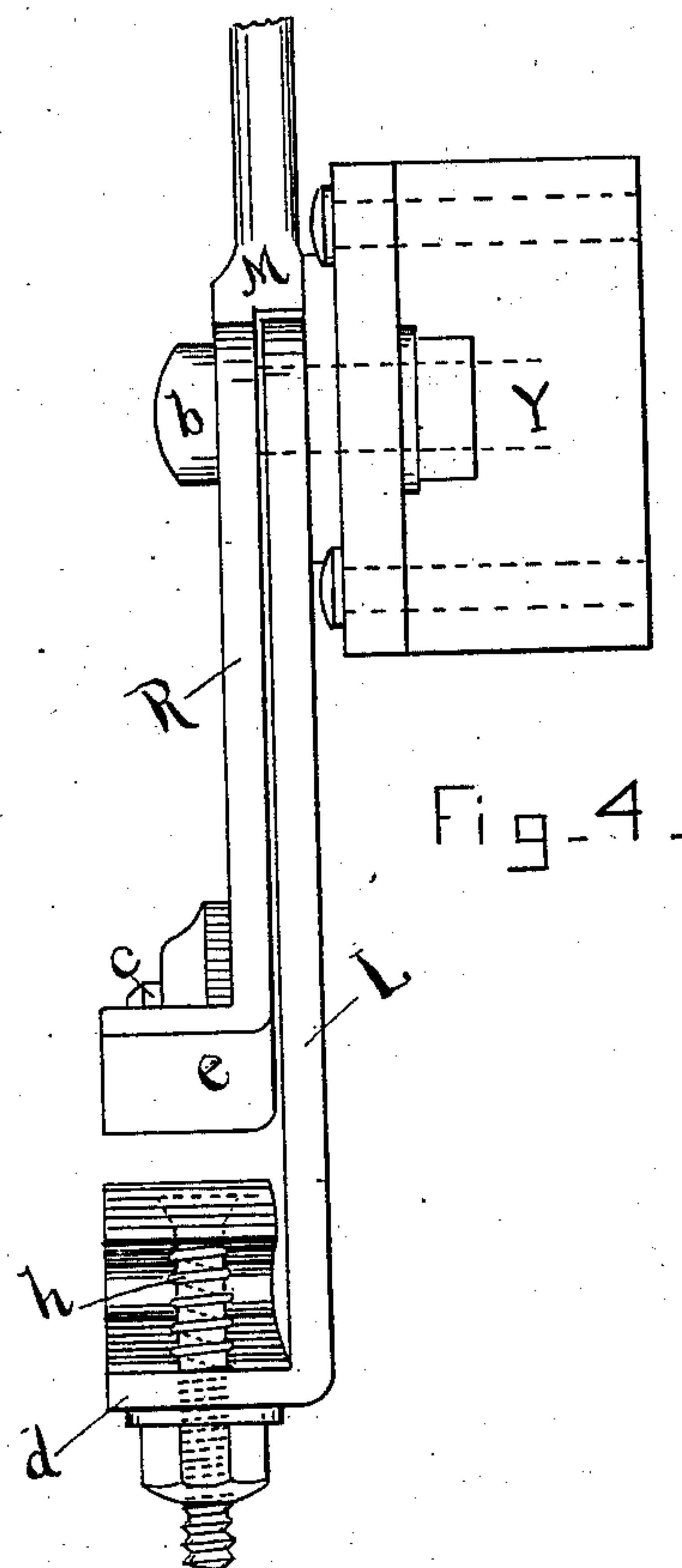
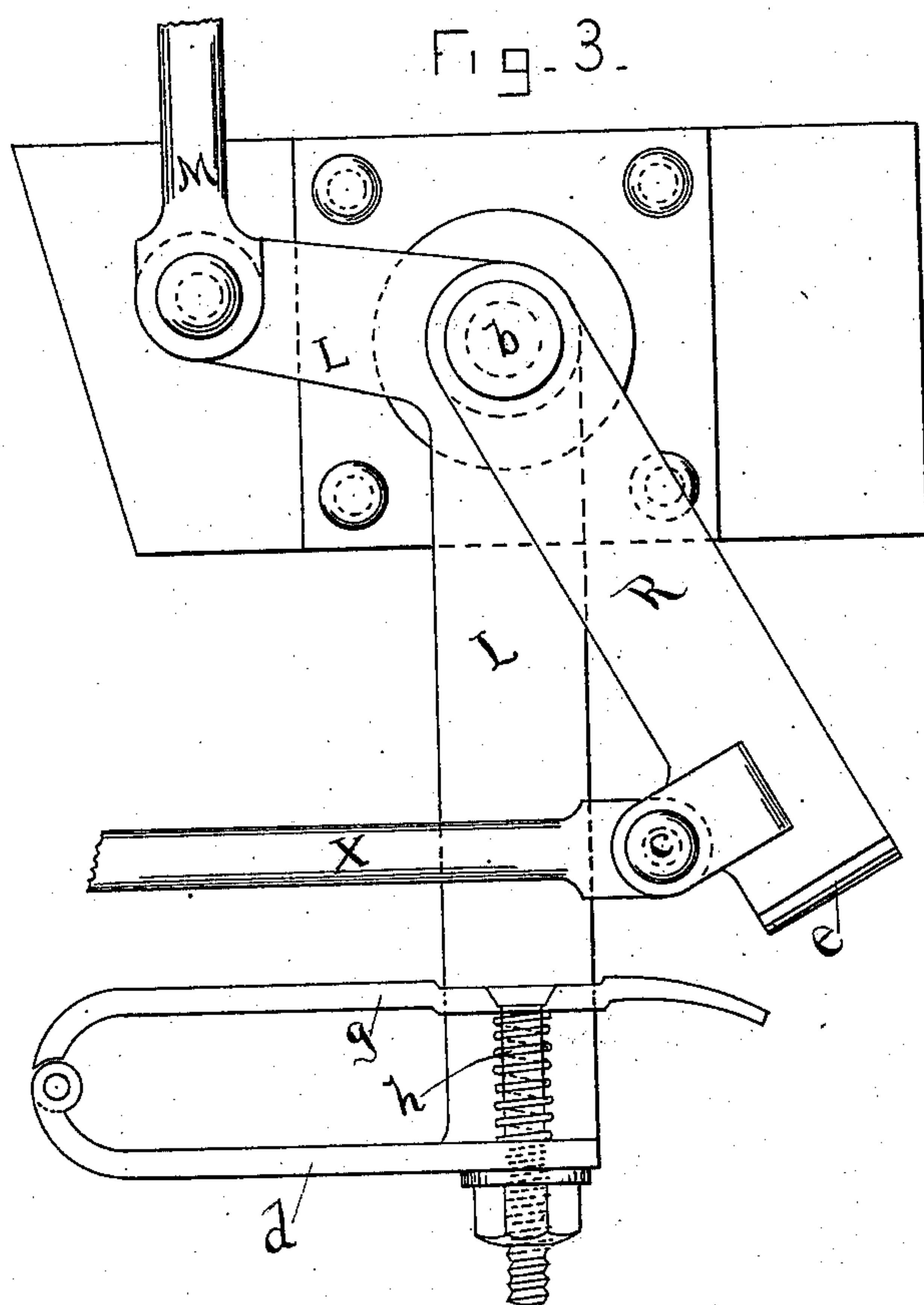
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# UNITED STATES PATENT OFFICE.

DANIEL McCARTHY, OF NORWICH, CONNECTICUT, ASSIGNOR TO PATRICK J. O'CONNOR, OF SAME PLACE.

## RAILWAY SWITCH AND CROSSING.

SPECIFICATION forming part of Letters Patent No. 293,660, dated February 19, 1884.

Application filed June 20, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL McCARTHY, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented a new and useful Improvement in the Construction of Railway Switches and Crossings where they intersect each other, of which the following is a specification.

My invention relates to railway crossings and sidings. Its primary objects are, first, to provide a siding or crossing without cutting the rails of the main track, and, in the second place, to provide an automatic siding, whereby the train, whether running upon the main track or the siding, may pass the points of the junction without liability to derailing.

The details of construction, in which my invention consist, are hereinafter described, in which the whole structure is shown in the drawings attached, in which—

Figure 1 shows a plan view; Fig. 2, a side elevation opposite the siding. Figs. 3 and 4 show details of construction hereinafter explained.

In these drawings, E E' represent the rails of the main track, and G G' rails of the siding. These rails terminate near the points *a* *a'* in Fig. 1. The rail A is pivoted at *a*, and the rail C is also movable, being pivoted at *a'*. The movable rail A is cut away underneath, and lies over the rail E', its tread being sufficiently above the tread of rail E' to allow the flange of the wheel to move upon rail A to pass over the rail E' of the main track. The part A rises gradually upon one side of the rail E', so as to carry the wheel up and over the underlying rail without undue jolting. Between the rails of the main track, and forming a continuation of the side rail, G, is a fixed rail, F, and at the end of this is a pivoted rail or point, D, the end of which is cut with a bevel, so as to lie snugly against the inner face of the rail E, and it may be made, if desired, to wholly or partially overlap that rail. The part C, which forms the other point of the siding overlaps the rail E', and is beveled down gradually, so as to bring the flange of the wheel smoothly over the rail E' in passing in

either direction between main track and siding. By the side of the rail G' is pivoted a lever-rail, T, the pivot being at *k* opposite the pivot *a'*, and this rail extends along side the movable rail or point C. The lever-rail T is connected to the moving mechanism by a rod, P, and the intermediate pivoted rail, A, heretofore described, is connected to another part of the mechanism, hereinafter explained, by a rod, X. The position of these rail-connections when in line with the siding is shown in full lines in Fig. 1. The out-of-line position is shown in dotted lines in the same figure. The end of the point C slides laterally upon a block, *k*, which may be of wood, with an iron-plate face. Opposite the end of the part A is another block, preferably of wood, (marked *k'*), of the form shown in Fig. 1. It has an inclined face parallel with the rail *a* when it lies across the rail E', and another short face, *i*, parallel with the rail E', and there is a space between the face *i* and the rail E' sufficiently wide to admit the flange of the wheel. The block I is faced with iron plate, which is turned upon the edge next to the rail A, forming a vertical flange. As the points C D are required to move under all circumstances simultaneously, they may be connected in any suitable way, as by rods S *g*, and they are connected to the rail T by a link, U, so that movement of the rails T in either direction moves the two points. Mechanism for operating these parts is also shown in Fig. 1. The bell-crank levers L are pivoted upon extended ties in proper position opposite the movable parts of the track. Each is connected to the same lever N, one by the rod M and the other by the rod O. The position of one is reversed to that of the other, so that movement of the lever N moves the part A and the points C D all in the same direction. The rods P and X are not connected directly to this bell-crank lever, but to arms R, which turn independently upon the pivots *b* of the bell-crank levers. This construction is shown more clearly in Fig. 3, where the end *e* of the arm R is represented as adapted to rest in a cavity or recess in a spring-arm, *g*. This spring-arm, *g*, as shown in Fig. 3, is pivoted to an arm, *d*, with an ad-



justable spiral spring, *h*, interposed between. This spring is carried upon the end of the bell-crank lever, and this forms a connection between the arm *R* and lever *L*, and holds the arm parallel with that arm of the lever to which the spring-catch is connected. When the arm *R* is turned in the position shown in Fig. 1, the end *e* is tacked in the recess, and the arm is thereby connected to the lever *L*, and moves with it, so that the operator, by moving the lever *N*, may open or close the siding at will.

The spring shown in Fig. 3 may be made with a hinge, or may be made entirely of spring metal, as shown at *d'* in Fig. 1. Suppose the lever to be so moved that the siding is left open, as shown in dotted lines in Fig. 1, and the train be coming from the siding to the main track, the flange of the wheel moving upon the rail *G* will crowd over the part *A* and push it across the main rail *E'*, thus forming a continuous track across that rail. When the locomotive is moved so far that the outer part of the tread of its wheel will strike the outwardly-bent part of the lever *T*, it will impinge against its inner face and throw that end outward. That movement will throw the opposite end inward, and thus push the point *C* over the rail *E'* and the point *D* against the rail *E*, thus completing the connection of the main track. The movement both of the rail *A* and the lever-rail *T* will throw the arms *R* out of connection with the spring-catch heretofore described, thus permitting the movements, even though the lever *N* be locked. On the other hand, suppose the siding to be in connection with the main track, and a train be moving on the main track toward the siding, (in the direction of the arrow, Fig. 1,) the flange of the wheel on rail *E'* will push aside the part *A*, and as it moves to the points *C D* these will be moved aside by the

flange passing between the point *D* and the rail *E*. The side of the other wheel will also tend to crowd over the point *C*. These movements are also permitted by the automatic release of the arms *R* over their spring-connections. The spring-arm *g* is so constructed that it allows the arm *R* to be swung back into place in order to make the proper connection.

As before intimated, with some modification, the construction is practical to a crossing. In that case the point *D* will be made to overlap the rail *E*.

I claim as my invention—

1. The combination of the siding-rails *G G'*, main rails *E E'*, movable part *A*, and points *C D*, the parts *C A* overlapping the rail *E'*, the lever-rail *T*, connected to the points *C D*, and a moving mechanism with automatic releasing-connections for moving parts *C D A*, all substantially as described.

2. The combination, with the fixed rails of main track and sidings, and the movable parts, as described, of the arms *R*, bell-crank levers *L*, spring-catches, and the moving operating-lever connected with the bell-crank levers, all substantially as described.

3. The combination of the bell-crank lever *L*, the arm *R*, the spring-catch carried upon the lever *L* and adapted to hold the arm *R* and the points of the switch, all substantially as described.

4. The combination of the siding-rails *G G'*, main rails *E E'*, movable part *A*, block *I*, having upturned iron flange, and inclined face parallel with the rail of the siding, and face *i*, parallel with the rail of the main track, with the space for the flange of the wheel between, all substantially as described.

DANIEL McCARTHY.

Witnesses:

FRANK H. ALLEN,  
GARDINER GREENE, Jr.