(No Model.) 2 Sheets—Sheet 1.

S. K. DUFF & F. S. WOOD.

RAILROAD SWITCH.

No. 342,687. Patented May 25, 1886.

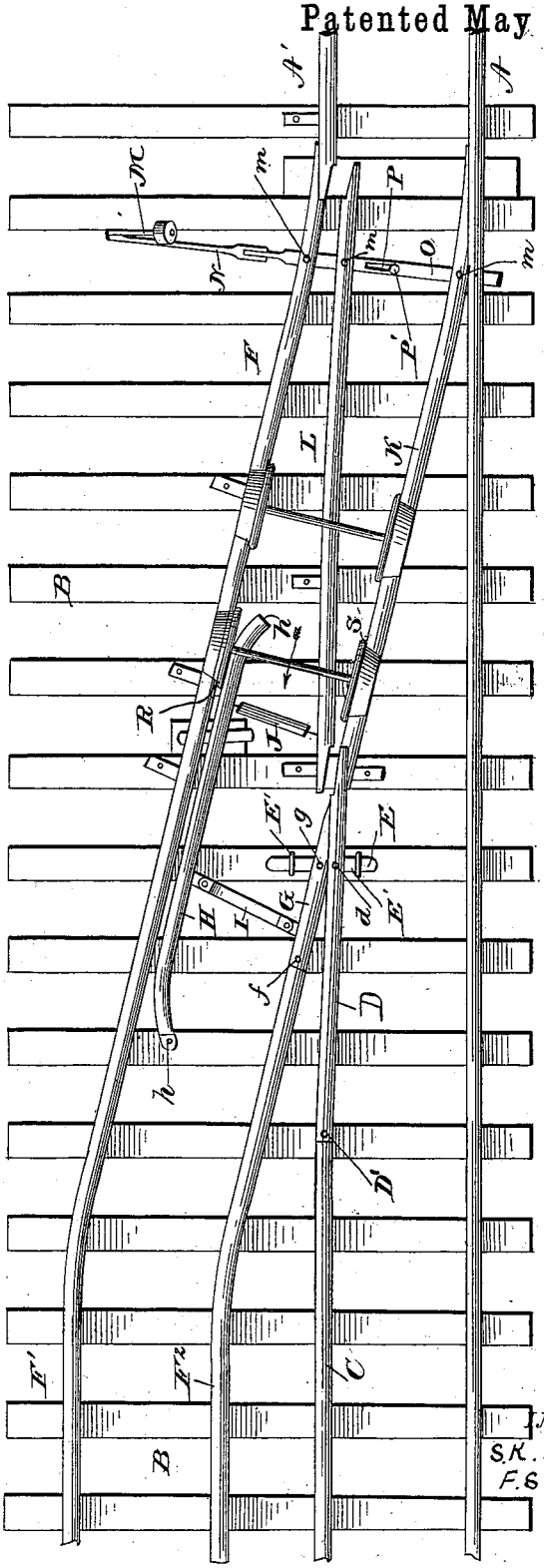

Fig. 1

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(No Model.) 2 Sheets—Sheet 2.

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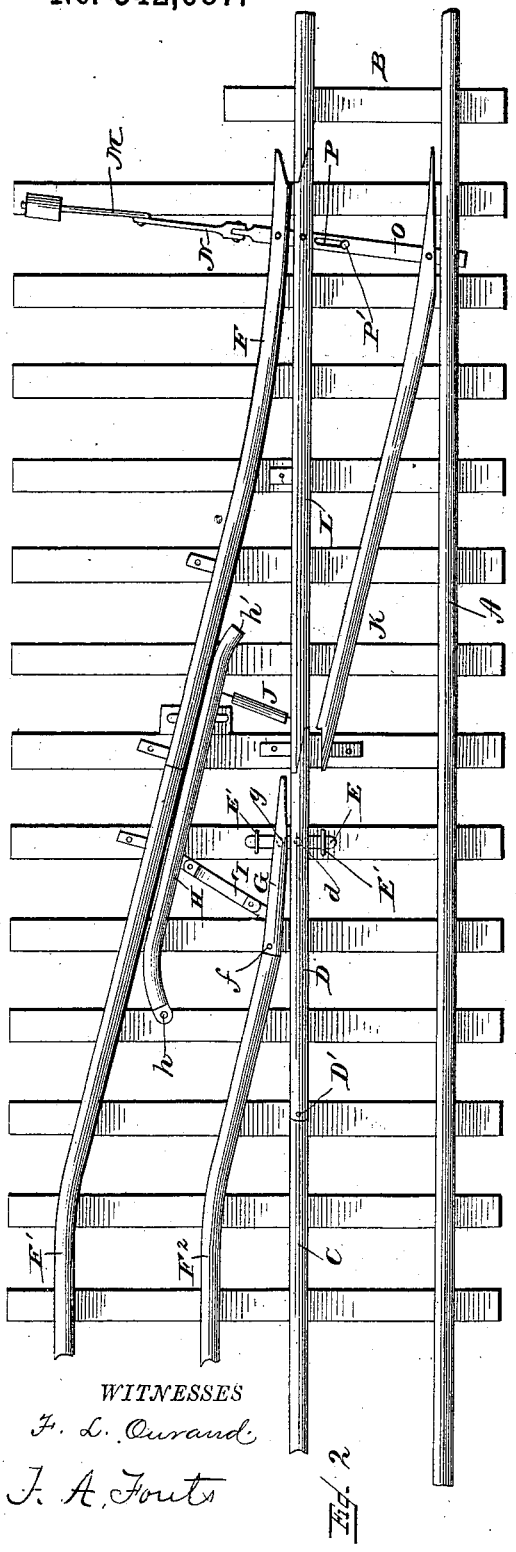

Fig. 2.

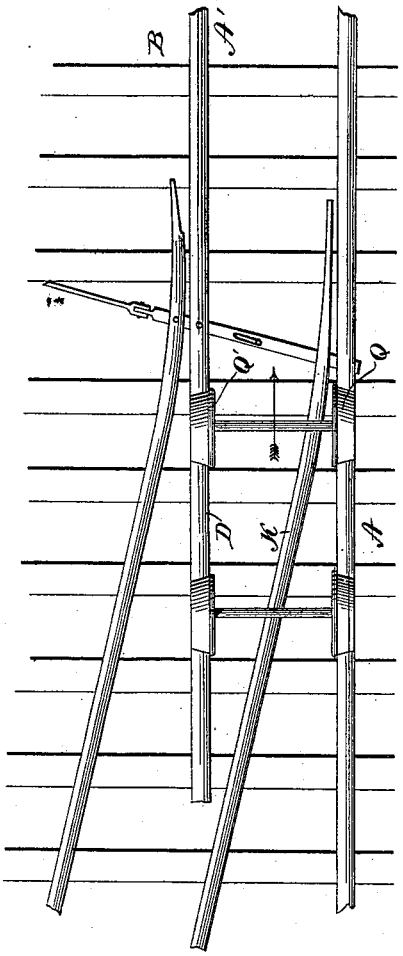

Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL K. DUFF, OF ALLEGHENY, AND FREDERICK S. WOOD, OF PITTSBURG, PENNSYLVANIA.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 342,687, dated May 25, 1886.

Application filed February 4, 1886. Serial No. 190,873. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL K. DUFF, of Allegheny, Pennsylvania, and FREDERICK S. WOOD, of Pittsburg, Pennsylvania, have invented a new and useful Improvement in Railroad-Switches, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

Our invention relates to a railroad-switch; and it consists in the parts which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of a part of the main-line rails and an intersecting siding. This view shows the switch thrown so as to admit a train to the siding. Truck-wheels are also shown entering the siding—the flange on the advance outside truck-wheel has encountered the lever guard-rail, whereby an opening has been formed for the admission to the siding of the flanges on the opposite wheels, all of which will be more fully hereinafter described. Fig. 2 is a plan view of the main line and intersecting siding, the rails lying so that a train will pass freely along the main line. Fig. 3 is a plan view of a section of the main line and siding. This view is intended to show the effect of the wheel-flanges on the switch-rails should the switch be open and the truck moving in the direction of the arrow. The result is that the flanges will close the switch and prevent the cars from leaving the rails, all of which will be fully hereinafter specified.

Like letters indicate like parts throughout the several views.

A represents the outside main-line rail. This rail is straight and unbroken. The cross-ties are represented by the letters B. The main-line rail lying next to the siding is indicated by the letter C. This rail is rigidly fixed to the ties.

D is a rail adjoining the rail C. The rail D is pivoted at D′ to a cross-tie. The outer loose end of the rail D is recessed and beveled on its outer side. The rail D is also pivoted at *d* to a movable cross-slide, E. This cross-slide is loosely secured to the tie by means of staples E′.

F represents the outside movable switch-rail. This rail is recessed and beveled, so as to form a lap-joint with the main-line rail A′ when the switch is open to the siding, as shown in Fig. 1.

F′ indicates the outside rail of the siding, and F² the inside rail. A short rail, G, is interposed between the outer end of the rail F² and the outside of the rail D. The rail G is pivoted at *g* to the movable cross-slide E. It is also pivoted at its inner end at *f* to the cross-tie. The outer end of the rail G is beveled, so that when the rails are in position to admit a truck to the siding said rail G will lie snug against the outer side of the rail D, as shown in Fig. 1.

H represents a pivotal guard-rail. This rail is pivoted to a tie at *h*. A cross-bar, I, unites the rails H and G. An incased spiral spring, J, is interposed between the rail K and the outer loose end of the rail H. This spring serves to hold the rail H in its normal position, as shown in Fig. 2. The rail H is in the nature of a lever. Its ends are curved outward. Its forward end, *h′*, is moved inward toward the switch rail L by means of car-wheel flanges. The switch-rail L has recessed beveled ends, which are adapted to unite and form lap-joints with the ends of the rails A′ and D, respectively.

The switch-operating mechanism consists in the weighted lever-arm M and jointed arm N. The inner end of the arm N is jointed at N′ to the slotted base-bar O. The rails F, L, and K are each fixed to the bar O, as indicated at *m m m*. The bar O has a slot, P. When the bar O is moved sidewise, the pin P′ in the slot P serves as a guide for the bar O and the rails fixed thereto.

Should a switch of my construction be left misplaced, a truck or train could not run off the end. This would be obviated in the following manner, assuming the switch to be open to the siding, as indicated by the outer ends of the rails F K, Fig. 1, (the truck entering the side track in this figure is intended to show another adaptation of my invention.) In this case the flange on the outside advance wheel (marked Q, Fig. 3) would encounter the rail K and force said rail into position so as to admit the flange through an opening between

the rails. The flange Q′ on the opposite side would also act simultaneously on the rail D. It will thus be observed that should the switch be misplaced, the inside of the flange Q′ would force the rail D in line, and the outside of flange Q would force the rail K into position, thus automatically and in an instant changing the position of the rails from the siding to the main line. When the rails are thrown open to the siding, the weighted arm M is in a vertical position. Therefore the jointed arm N and the arm M unite to form a bell-crank. The object of this construction is that should the switch be misplaced the jointed arm N and weighted arm M will quickly respond to the action of the rails when actuated by the flanges.

It will be observed that when the rails C A are set for the main line, the short beveled rail G is held away from the outside of the rail D. The rail G is held a sufficient distance away to prevent the outside tread of a car-wheel from pounding it when a train is passing; but when a truck starts to enter or leave the siding the flanges on the truck-wheel—*i. e.*, the advance flange R on the outer wheel, Fig. 1—enters between the pivotal rails H and the rail F. This action forces the outer end, *h′*, of the rail H to move inward. The instant the rail H is moved inward the bar I is actuated. This moves the short rail G. The rail G, being pivoted to the slide E, causes said slide to move. The pivoted rail D, being also pivoted to the slide E, is moved with the rails G H and slide E. It will thus be observed that contact of the flange R with the loose end of the rail H causes a movement of the rails D G, so as to admit the inside flanges of the truck, (marked S.) After a train has passed, the rail H is moved back to its normal position by means of the spring J, and through the medium of the bar I and slide E the rails D and G are also moved to place or in position for the main line, as indicated in Fig. 2.

The rails D and G are both pivoted to the slide E. The rail D is more than twice the length of the rail G. Both rails D and G are pivoted to the cross-ties—one at D′, the other at *f*. It will be seen that the same bar actuates both rails; but the rail G, which is pivoted at *f*, has a quicker and longer movement than the rail D, which is pivoted at D′. This variation in the fulcrums causes the short rail G to lie against the main-line rail D when the rails are in position for the side track, and also causes said short rail to lie away from the main-line rail when the main-line rails are straight, as indicated in Fig. 2.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The pivoted spring-actuated rail H, the cross-bar I, pivoted rails D G, and slide E, in combination with the rails F L K, substantially as described, and for the purposes set forth.

2. The pivoted spring-actuated rail H, the cross-bar I, pivoted rails D G, and slide E, the rails D G having bevel ends and secured to the slide E, as indicated, in combination with the rails F L K, the converging end of the rails L K being recessed and beveled, substantially as described, and for the purposes set forth.

3. The pivoted spring-actuated rail H, cross-bar I, pivoted rails D G, and slide E, the rail G being shorter than rail D, said rails differing in their pivotal points, as indicated, whereby the short rail G lies against the main-line rail when a truck is entering or leaving a siding and lies away from said rail when a truck has moved away from the pivoted spring-actuated rail, in combination with the rails F L K, the converging ends of the rails K L being recessed and beveled, substantially as described, and for the purposes set forth.

4. The weighted switch-arm M, jointed arm N, base-plate O, in combination with the rails A A′, one end of the rail A′ being recessed and beveled, and the rails F, L, and K, the outer ends of the rails F L being recessed and beveled so that either may form a lap-joint with the rail A′, the outer end of the rail K being split or beveled, substantially as specified, and for the purposes set forth.

5. The weighted switch-arm M, jointed arm N, slotted base-plate O, and guide-pin P′, in combination with the rails A A′, and rails F L K, the ends of the rails F, L, and A′ being recessed and beveled so as to form a lap-joint, the outer end of the rail K being split or beveled, substantially as described, and for the purposes set forth.

6. The combination of the siding-rails G and K and the intervening main-line rail D, whereby, when a train or truck is leaving or entering the siding, the said three rails unite to form a continuous rail, substantially as specified.

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