

(No Model.)

2 Sheets—Sheet 1.

W. F. D. PASCOE & J. W. RAUB.  
THREE-WAY SAFETY SWITCH.

No. 378,519.

Patented Feb. 28, 1888.

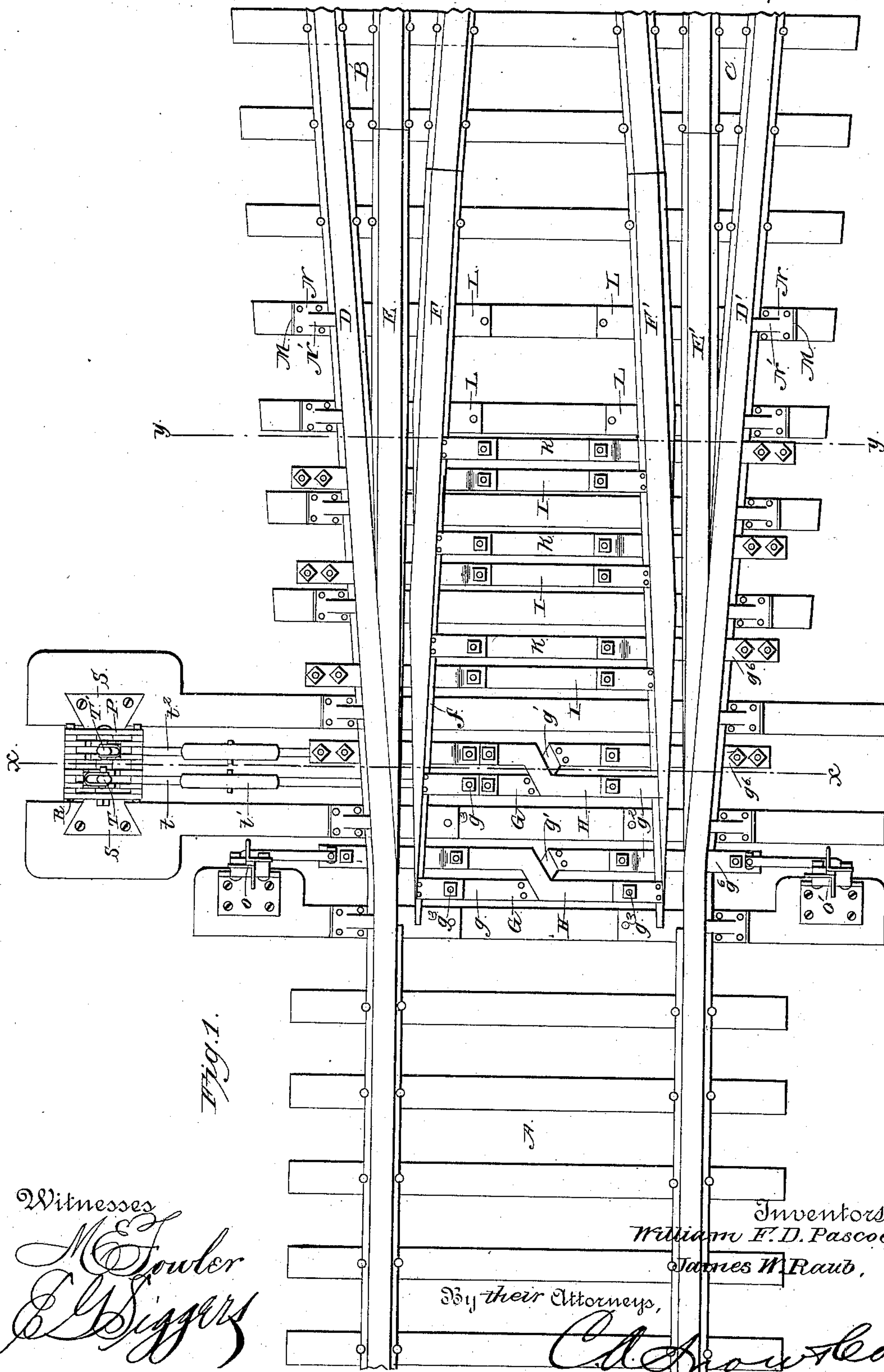


Fig. 1.

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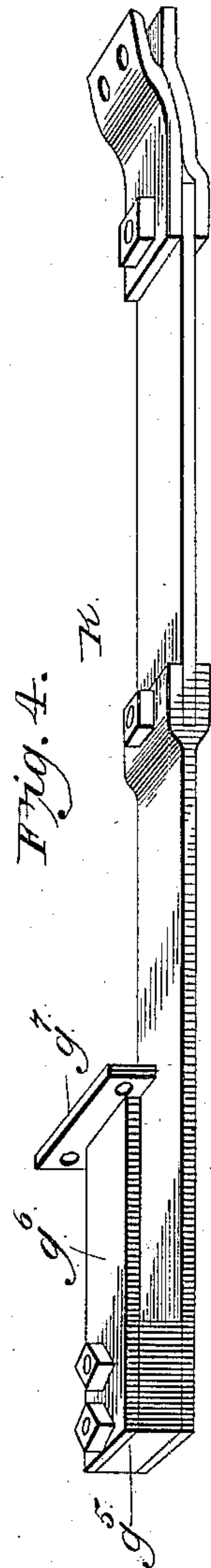
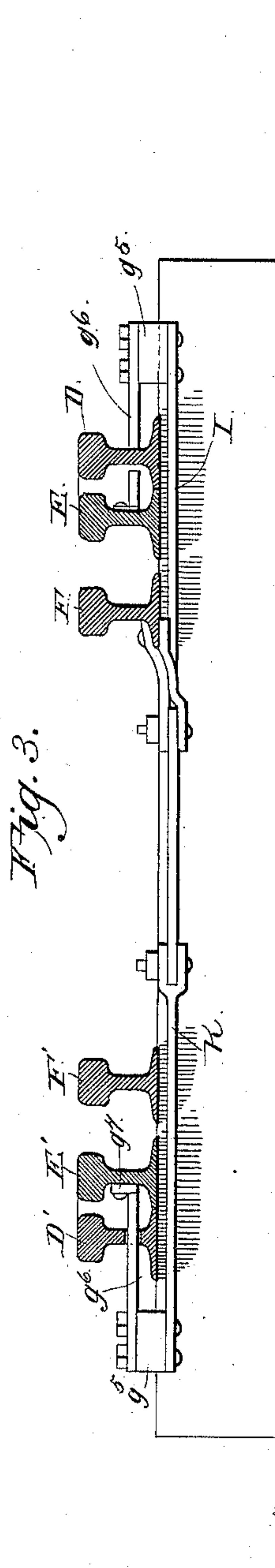
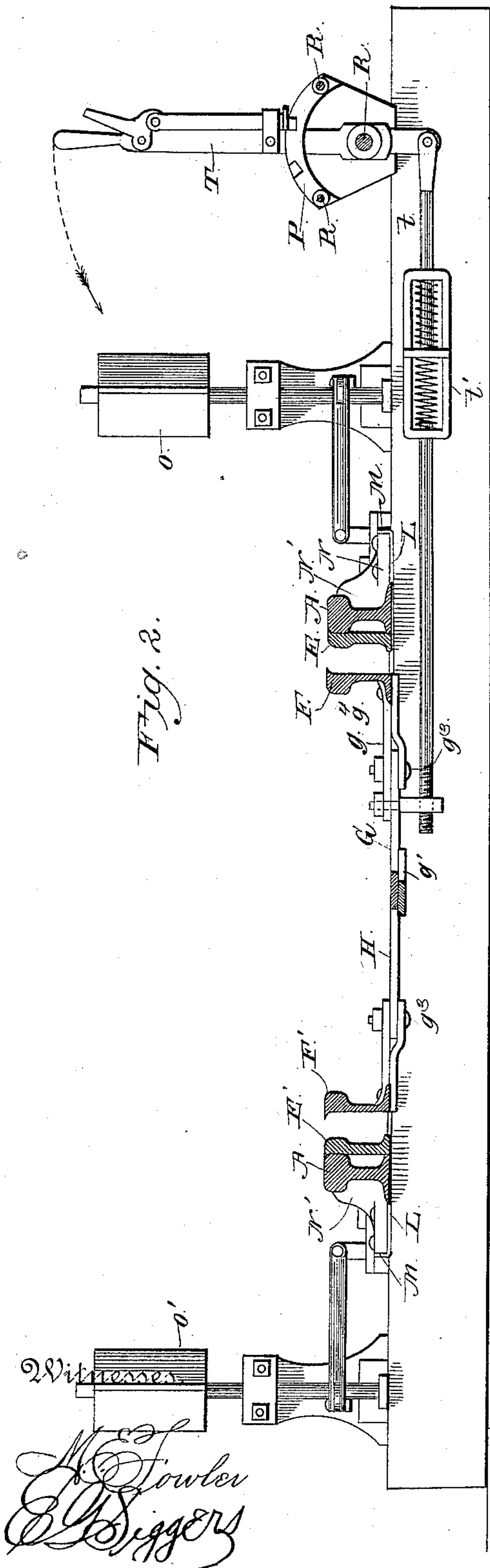
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THREE-WAY SAFETY SWITCH.

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# UNITED STATES PATENT OFFICE.

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## THREE-WAY SAFETY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 378,519, dated February 28, 1888.

Application filed July 22, 1887. Serial No. 245,004. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM F. D. PASCOE and JAMES WILSON RAUB, citizens of the United States, residing at South Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Three-Way Safety-Switches, of which the following is a specification.

Our invention relates to an improvement in three-way safety-switches; and it consists in the peculiar construction and combination of devices, which will be fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of a switch embodying our improvements, showing the same set for the main track. Fig. 2 is a vertical sectional view taken on the line  $x x$  of Fig. 1. Fig. 3 is a similar view taken on the line  $y y$  of Fig. 1. Fig. 4 is a detached perspective view of one of the connecting-rods.

A represents the main track, and B C represent side tracks, which extend from the opposite sides of the main track.

D and D' represent rails which bend at a suitable angle and have their straight portions arranged in line with and forming a part of the main track, their diverging portions arranged in line with and forming portions of the outside rails of the side tracks, B and C, respectively.

E and E' represent point switch-rails, which are pivotally connected to rails A of the main track and have their free pointed ends arranged on the inner sides of the diverging portions of the rails D and D'.

F and F' are point switch-rails pivotally connected to the rails forming the inner side of the side tracks, the said rails F and F' being arranged on the inner sides of the rails E and E', as shown. The rails F and E' are connected together near their free ends by connecting-rods G. The said connecting-rods are each formed of three sections,  $g$ ,  $g'$ , and  $g''$ , which are pivotally connected together by means of bolts  $g^3$ . The inner ends of the sections  $g$  are bifurcated, as at  $g^4$ , and embrace the upper and lower sides of the horizontal flange  $f$  on the inner side of the rail F, at the base thereof, and are secured to the said flange by bolts. The central portions of the sections

$g'$  are oblique, and the ends of the said sections, which extend in opposite directions from the ends of the oblique portions, are parallel, but are out of line with each other. The inner ends of the sections  $g''$  are bifurcated, so as to receive the opposing ends of the sections  $g'$  at the pivotal connection therewith. The outer sections,  $g''$ , extend under the base of the rails F', E', and D'. On the upper sides of the outer ends of the said sections  $g''$  are blocks  $g^5$ , and on the upper sides of said blocks are arranged the outer ends of bracket-arms  $g^6$ . Bolts connect the sections  $g''$ , blocks  $g^5$ , and bracket-arms  $g^6$  rigidly together. Said bracket-arms extend inward from the blocks, pass through horizontal transverse openings made in the web of the rail D', and the extreme inner ends of the said bracket-arms are upturned and broadened to form plates  $g^7$ , which bear against the outer sides of the web of the switch-rail E' and are bolted rigidly thereto.

From the foregoing description it will be understood that the switch-rails F and E' will be caused to move simultaneously.

H represents connecting-rods which are similar in construction to the connecting-rods G, and have their oblique portions arranged transversely over the oblique portions of the rods G, the said rods H connecting the switch-rails E and F' and having their bracket-arms passed through horizontal transverse openings in the web of rail D. A series of connecting-rods, I, which are similar in construction to the rods G, with the exception that the central sections thereof are straight, are employed to connect the rails E and E' at suitable regular distances, thus serving to strengthen the connections between the said switch-rails, and similar rods, K, connect the switch-rails F and E'.

L represents a series of bearing-plates which are secured on the upper sides of the cross-ties and are arranged under the base of the switch-rails. The outer ends of the said plates are upturned to form vertical flanges M.

N represents supporting-chairs, which are bolted to the outer ends of the plates L, and are provided with inwardly-projecting bracket-arms N', that bear against the outer sides of the rails D and D' and serve to protect the latter against lateral displacement under strain.



On opposite sides of the track are erected the usual switch targets or signals, O and O'. The target O has a crank-arm which is connected to one of the connecting-rods H, and the target O' has a crank-arm which is attached to one of the rods G. The said targets are thereby rotated through a quarter of a circle when the switch-rails are moved in either direction, and thus indicate to the engineer of an approaching train the position of the switch.

P represents a series of segment-plates which are connected together by means of bolts R. The outer plates of the said series have outwardly-projecting base-plates S, which are secured on the projecting ends of two of the cross-ties. In between the segment-plates are pivoted a pair of operating hand-levers, T and T'. The lower end of the lever T is connected to one of the rods G by means of the rod  $t$ , which is formed of two sections connected by a swivel,  $t'$ , and the lower end of the lever T' is connected to one of the connecting-rods H by means of a similar rod,  $t^2$ . Each of the hand-levers has a spring-actuated latch-bolt adapted to engage notches in the peripheries in the segment-plates, and thereby secure the hand-levers in any desired position. The hand-lever T, being connected to the rods G, is adapted to operate the switch-rails F and E', and thereby set the switch either in line with the main track or with the side track C, and the hand-lever T', being connected to the switch-rails E and F', is adapted to set the switch either in line with the main track or with the side track B.

Having thus described our invention, we claim—

1. The combination of the rigid main rails, the movable switch-rails, and the arms rigidly secured thereto and projecting outward through openings in the webs of the adjacent main rails, and the bars passing under the bases of the main rails and connecting the projecting arms of each switch-rail to its companion switch-rail, substantially as described.

2. In a railway-switch, the combination of the switch-rails and the jointed bars connecting the said switch-rails, the said bars passing under the bases of the main rails and having the inwardly-extending arms passed through

openings in the webs of the main rails, substantially as described.

3. The combination of the rigid main rails, the movable switch-rails, the arms rigidly secured to the switch-rails and projecting through openings in the adjacent main rails, and the pivotally-jointed connecting-bars passing under the bases of the main rails and having their end sections rigidly secured to the projecting arms of the switch-rails and to the base-flanges of their companion switch-rails, substantially as described.

4. In a three-way railway-switch, the combination of the rigid diverging rails D and D', the point switch-rails E E' and F F', and the bars connecting the said switch-rails together in pairs, the said bars being each composed of a series of sections pivotally jointed together, having their inner ends provided with bracket-plates rigidly bolted to the flanges on the inner sides of the inner switch-rails, and their outer ends passed under the bases of the opposite rigid and switch rails, and provided at their outer ends with inwardly-extending extension-arms passed through openings in the webs of the rigid rails and rigidly connected to the outer sides of the webs of their companion switch-rails, substantially as described.

5. In a three-throw railway-switch, the combination of the main rails D D', the switch-rails E E' F F', the pivotally-jointed bars H, connecting with the switch-rails F' at one end, then passing under the bases of the opposite switch and rigid rails, and having inwardly-extending arms to connect with the rails E, and the jointed bars G, arranged in a similar manner, but connecting the rails F E', the said bars G H being crossed, and the straight jointed bars K I, connecting the switch-rails in a manner similar to the arrangement of the bars G H, as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

WILLIAM F. D. PASCOE.  
JAMES WILSON RAUB.

Witnesses:

H. C. PURDY,  
LINCOLN H. RAUB.